

Research Paper

Improving EFL Learners' Argumentative Writing through Critical Thinking Disposition: Focus on Gender-Related Differences

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Abstract

Critical thinking disposition, as an important feature of the critical thinking concept, is considered as the active representation of critical thinking skills. This study investigated the contribution of gender and critical thinking disposition (CTD) on improving Iranian EFL learners' argumentative writing development. The participants were 150 intermediate EFL learners in five groups ranging from 20 to 30 years of age who were equally divided into three experimental (EGs) and two control groups (CGs); one group was only males (CG1), and the other only females (CG2). Participants took two TOEFL writing exams before and after the treatment sessions, followed by a CCTDI questionnaire before and after treatment sessions. The researchers taught both the experimental and control groups. Attempts were made to determine whether there were any gender differences at work while the EFL learners in the EGS were exposed to the treatment and the CGs received conventional instruction. The findings indicated no notable variation in writing scores based on gender-related distinctions among the participants in this research (17.84 vs. 18.43), but gender did play a role in the critical thinking disposition scores of the learners in which male learners significantly outperformed female learners in the CCTDI, and there was a statistically significant difference in CCTDI scores was observed, which indicated a statistical significance among groups: males ($M = 355.22$, $SD = 13.66$) and females ($M = 325.94$, $SD = 16.92$). The findings provide further evidence for the effectiveness of the role of gender in Iranian EFL learners' critical thinking disposition.

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1 INTRODUCTION

Despite the extensive efforts and investment in foreign language education in Iran, it is disheartening to note that students continue to face challenges in developing their language learning skills. The root of this problem, as previously highlighted by Schafersman (1991), appears to lie within the educational system itself. Teachers, still influenced by traditional teaching approaches, prioritize instructing students on 'what to think' rather than fostering effective critical thinking skills. Consequently, students predominantly acquire lower-level learning abilities such as associative and rote memorization. This approach leads to misunderstandings, biases, and demotivation, as students rely on short-term memorization techniques for performance (Paul & Binker, 1990). These techniques significantly hinder students' ability to engage in meaningful and reflective learning experiences (Fahim & Ahmadian, 2012).

The concept 'gender' is now incredibly popular and constantly evolving in the English language. It pops up everywhere, and its meanings are always changing, which can be surprising. We discuss gender roles, worry about the gender gap, and question whether our ideas are biased or specific to a certain gender. To learn more about these topics, we can explore the expanding gender studies section at our local bookstore. However, the abundance of these new terms can be confusing, especially when they seem to contradict each other. For example, 'gender role' implies a constraint or limitation, like a role we have to fulfill, while 'gender-bending' suggests breaking free from those roles through parody or embracing ambiguity. What was once considered fixed now becomes

flexible, an opportunity to play with style and challenge societal expectations.

Developing argumentative writing skills among EFL students and the impact of critical thinking and gender-related differences in this process is a key objective in the Iranian EFL instructional context (Fahim & Eslamdoost, 2014). Argumentative writing is considered an advanced form of critical thinking and brainstorming, requiring a combination of skills that gender differences and cooperative learning may influence. The ability to write proficiently necessitates cultivating advanced thinking and reasoning skills. Freeley and Steinberg (2013) emphasized the importance of conversations, debates, and problem-solving activities to foster critical thinking in students. However, only a small amount of research has been carried out in the Iranian EFL context to probe the impact of using critical thinking and gender roles to enhance argumentative essay writing among Iranian EFL learners. Traditionally, Iranian EFL contexts have focused their attention on developing language skills, with little attention given to critical thinking, gender differences, and learner autonomy.

Khorasani and Farimani (2010) noted that conventional teaching methods are still prevalent in Iran, with learners perceiving teachers as sources of knowledge and teachers viewing students as passive recipients of knowledge. Moreover, instructional materials often lack content related to critical thinking and gender differences as educational objectives. This narrow focus overlooks the essential aim of language teaching, which is to cultivate critical thinking and effective communication skills. Consequently, despite achieving high test scores, graduates may struggle to become effective instructors as they lack the necessary critical thinking

abilities. Active learner involvement in the learning process allows them to directly meet the advantages and disadvantages of their instructional contents, making them certain that EFL contexts become more than just trial-and-error environments.

Critical thinking disposition is an integral aspect of thinking critically. It serves as an active representation of CT skills and their related abilities. Without the presence of CTD, the mastery of CT in practical applications becomes unattainable. Sadly, most scholars have focused their studies on CT skills rather than CTD, mainly due to the lack of reliable measurement scales for CTD. Even though there are a few studies on CTD, there is a paucity of research on the relationship between CTD components and how gender influences the improvement of argumentative writing skills. Therefore, it is crucial to study the impact of gender on CTD. EFL teachers need to investigate whether gender differences exist in CTD or not in order to enhance the EFL students' argumentative writing skill.

Argumentative writing is considered a challenging subject for foreign language learners to master. Second language learners must invest significant effort in comprehending the most critical components of argumentative writing, including hooks, blueprints, supporting phrases, and conclusions. EFL/ESL students must use a variety of different writing methods in order to write correctly. Previous research conducted in Iran indicated that Iranian EFL learners have significant difficulties in comprehending and applying English writing abilities (Rezaei & Jafari, 2014).

Hashemi and Zabihi (2012) in their study concentrated on Iran's educational system. They stated that under such an educational system, learners' minds are seen

as a repository of knowledge and information rather than a space for creativity and thought. They criticized the system in this regard. Thus, the findings indicated that critical thinking instruction for Iranian EFL students is required and should be examined.

2 LITERATURE REVIEW

The scientific origins of critical thinking are traced back to the tutoring traditions and beliefs of Socrates, a philosopher (c.470–399 BC) identified by the approach of specific examining that humankind could not wisely advocate his self-reliant statements to their knowledge. Socrates asserted that people cannot rely on those in their jurisdiction to have reliable knowledge and wisdom. He emphasized the significance of probing logical inquiry that led to rational reasoning before accepting ideas as trustworthy and reliable. Socrates employed a dialogic approach with his learners in order to encourage them to have deep contemplation. His objective was to develop the skill of assessing ideas, unbiased judgment, and speculation. The act of seeking evidence, evaluating reasons, examining core concepts, and exploring the practical implications of people's actions and words held great importance for Socrates (Rashtchi & Khoshnevisan, 2020).

2.1 Critical Thinking in the Iranian EFL Context

In recent years, several works have studied different dimensions of thinking critically and its applicability in English as a Foreign Language (EFL) classrooms. The subsequent section presents a comprehensive overview of articles investigating the Iranian EFL context throughout the country. The primary objectives of these articles were to examine the connection between critical thinking and other related

concepts, as well as to determine the potential effect of teaching critical skills on students' language proficiency.

Amirian et al. (2023) conducted a study to examine the significant impact of critical thinking (CT), positive and practical beliefs, and instructing preferred styles on the success of professors and, as a result, the educational system's success. The findings revealed that CT proficiency and having positive and practical beliefs of teachers directly affect their teaching style preferences. Additionally, according to the findings of the study, the CT skills of Iranian EFL university professors have a positive impact on their sense of efficacy beliefs.

Hoorijani and Heidari Tabrizi (2023) studied the impact of critical thinking dispositional features and action learning on Iranian EFL learners' argumentative writing skill. They 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.

In their study, Eghbali et al. (2023) examined the attributes of the free-to-express-the-ideas type of classroom and its association with Iranian higher education classrooms. The findings from the comparison between Iranian higher education classrooms and those possessing emancipatory qualities revealed a lack of correlation between these attributes. Specifically, Iranian higher education classrooms were found to be characterized by a lack of

participation and an authoritative approach, with instructors displaying reluctance to engage with learners. Additionally, learners reported a lack of exposure to emancipatory education, while the syllabus was observed to be focused on memorization and quantitative assessments. Furthermore, the classroom environment was described as non-motivational and hierarchical, characterized by one-way teaching.

Hoorijani and Heidari Tabrizi (in-press) in their study systematically reviewed the critical thinking dispositional studies in the Iranian EFL context and based on their review and findings, they tried to present a comprehensive framework of these conducted studies in the Iranian EFL context and filled the research gaps by introducing and suggesting new critical thinking-related topics. Additionally, Hoorijani et al. (2022) conducted research to explore the perspective of EFL teachers and learners on the impact of critical thinking disposition on improving EFL learners' argumentative writing. The results of their study indicated that both EFL professors and students have practical perspectives toward English language teaching and learning. However, they also revealed that possessing a positive attitude towards a foreign language did not necessarily lead to improvement in English proficiency.

In their study, Abdar and Shafaei (2022) found a direct connection between thinking and certain sub-domains of teaching approaches. They concluded that various factors, including teacher characteristics such as reflective thinking and teaching styles, can influence the process of language teaching. They recommended that the interplay between these factors holds promise, as enhancing one factor can lead to improvements in the other. Additionally, the results indicate that teaching

styles characterized by flexibility, adaptability, student-centeredness, sensitivity, and a straightforward approach are associated with higher levels of reflective thinking.

Ravandpour (2022) Studied the relationship between Iranian EFL learners' flipped learning readiness and their learning engagement, critical thinking, and autonomy. The findings of her study revealed that flipped learning readiness correlated positively and significantly with three variables: learning engagement, critical thinking, and autonomy. In addition, based on the results, flipped learning is a positive significant predictor of critical thinking, learning engagement, and autonomy. Moreover, engagement is positively predicted by both critical thinking and autonomy.

Zare et al. (2021) conducted a study to investigate the impact of critical thinking-oriented dynamic assessment (CT-DA) on the reading comprehension performance of Iranian language learners. The findings of their study indicated that both the CT-DA and DA groups performed better than those in the control group in terms of reading achievement. This suggests that the mediation provided through dynamic assessment procedures effectively enhanced the learners' reading performance. Furthermore, the results of critical thinking-oriented dynamic assessment and dynamic assessment did not show a statistically significant difference, which indicated that both types of mediation had a similar impact on the learners' reading achievement.

2.2 Critical Thinking as a Cognition Approach

Strategies based on a knowledge of how the mind works can assist in reducing cognitive load and, as a result, make writing

easier (Mayer, 2002). The introduction of new technologies into education results in the development of novel models of teaching and learning in an interactive and engaging learning environment. From a methodological point of view, critical thinking can be viewed as a manifestation of innovative culture, which has the potential to achieve competitive advantages across the educational spectrum, particularly in an EFL context (Plachkov, 2013).

The pertinent literature provides a foundation for understanding the key aspects related to the research questions and the affective factors of the present study. A thorough examination of the reviewed literature demonstrates the significance of possessing critical dispositional features in the EFL context, as well as its impact on the development of writing among EFL learners. Additionally, the literature highlights the influence of gender differences in this context. Unfortunately, to date, limited research has investigated the concept of critical thinking dispositional features and gender-related differences in improving EFL learners' argumentative writing among Iranian EFL learners. The present research study, as a part of a larger research project, was an attempt to address this gap in the literature. Accordingly, the objectives of this study were twofold:

The first objective of the present study focused its attention on the argumentative writing development of Iranian EFL learners from a gender-based view, so the researcher tried to investigate the concept of whether males and females are different from each other regarding their argumentative writing skill improvement or not. The second objective of the present study was to investigate the concept of critical thinking disposition again from gender-based differences to see which gender

outperformed the other in their critical thinking disposition improvements in their writing course and develop future strategies for improving the intermediate EFL learners toward having a critical thinking disposition in their studies as well as their argumentative writing skill.

Hoorijani and Heidari Tabrizi (in-press), in their study, proved the positive role of critical thinking disposition on Iranian EFL learners' argumentative writing skill, thus based on the findings of the above-mentioned study, they tried to investigate these improvements from a gender-based view; in other words, they investigated whether there was any significant difference between male and female Iranian EFL learners receiving the treatment and whether having a critical thinking disposition was related to gender-based differences; therefore, based on the findings of the above-mentioned studies, this research specifically addressed the following research questions:

RSQ1: Do gender-based differences have any significant effect on the improvement of EFL learners' argumentative writing skill through synthesizing a critical thinking disposition and action learning approach?

RSQ2: Do male and female Iranian EFL learners show any significant difference considering critical thinking dispositional features improvements in their writing course or not?

3 METHOD

This section provides a thorough explanation of the study's design and context, the

participants involved, the instruments used, the procedure for collecting data, and the procedure for analyzing the data.

3.1 Design and Context of the Study

This study utilized a quasi-experimental control/experimental group pre-test/posttest design in order to fulfill its objectives. The study consisted of two groups: an experimental group and a control group. The independent variable examined critical thinking disposition and gender differences, while the dependent variable focused on the development of argumentative writing in the learning environment. The study was conducted at the Islamic Azad University, Kurdistan Branch.

3.2 Participants

The study involved participants who were undergraduate EFL learners from five intact classes in Iran. Of a total of 400 EFL learners, 150 were selected based on their performance on the Oxford Placement Test (OPT). These 150 learners were then randomly divided into five groups: two control groups (consisting of 73 learners) and three experimental groups (consisting of 77 learners). The age range of the participants was between 20 and 30 years old, with 108 females and 42 males. All participants were Iranian and had language learning experience limited to secondary and tertiary education. A summary of the participant's demographic data is provided in Table 1.

Table 1. Demographic Background of the Participants

No. of Learners	150
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Gender	108 Females and 42 Males
Native Language	Kurdish, Persian
Majors	Translation, Literature, Teaching
Academic Years	2022
Age	20-30
Level of Proficiency	Intermediate

Note. All participants were required to complete a writing pretest and an achievement posttest. Additionally, the variable of gender was considered in this study. All participants were enrolled in the English course at the Islamic Azad University, Kurdistan Branch, Iran, in five distinct classes.

3.3 Research Instruments

3.3.1 The California Critical Thinking Skills Test (CCTST)

The CCTST was designed by Facione (1990) to assess one's disposition to use critical thinking. There are 34 items in this questionnaire. Multiple-choice items are based on everyday experiences that are relevant to the intended test-taker population. Each item demands the test-taker to provide an accurate and thorough explanation of the question. Any specialized information required to reply appropriately is included in the question itself. The intensity and intricacy of the standardized test items vary. Various questions gradually invite test-takers to investigate or construe information in text, graphs, or illustrations, to show precise and justified conclusions, to assess assumptions and demonstrate why they depict positive or negative justification, or to discuss why a provided assessment of a logical deduction is good or bad. The tool is normally given in 45-50 minutes; the test duration is chosen to allow for high - development within the range of achievable energy for the target sample group.

The validity of the California group of measurement techniques is based on the

cross-disciplinary conceptual definition of critical thinking developed during the APA Delphi Research Study (1988-1990) and replicated in the mid-1990s by the Department of Education-funded Penn State University Research study. The CCTST scales correlate to Delphi's primary critical thinking abilities. The CCTST is composed of items taken from a pool of objects tested over the last two decades. The items used on each of these instruments have been subjected to the standard validation procedures. Validation samples are often formed of test taker groups located both inside and outside the United States. Independent research has established the CCTST's criterion validity, the highest level of validity for measuring tools.

The CCTST presents a range of rating scales that describe one's advantages and weaknesses in several skill areas. The California Critical Thinking Skills Test is scored on the following scales in all forms and versions: Analysis, Evaluation, Inference, Deduction, Induction, and Overall Reasoning Skills.

The CCTST with seven dimensions (available online) provides standardized methods in all of the participant's fundamental critical thinking skills listed above, as well as scores for Interpretation and Explanation; this more refined presentation supports postgraduate learning outcomes goals by allowing evaluators to evaluate and identify each of the skills.

The CCTST was created to assess test takers' ability to exhibit the critical

thinking abilities necessary for success in educational or professional contexts where problem-solving and decision-making via the use of reasoned judgment are vital. The CCTST, which is used across the United States and in a variety of countries and languages worldwide, has been shown to accurately predict critical thinking ability in actual issue scenarios and performance on professional license tests.

- The CCTST is suggested in educational contexts for evaluating program

Table 2. CCTST scales, based on the Insight Assessment CCTDI website (Insight Assessment 2016) and the user manual (Insight Assessment 2017a)

Scale	Scale Description
Overall score	The overall measure of critical thinking mindset.
Reasoning Skills - Overall	The Ability to Reason Overall refers to an individual's ability to use reasoning to make thoughtful judgments about what to believe or do. To get a high overall score, the test taker must demonstrate persistent, focused, and integrated use of fundamental reasoning abilities such as analysis, interpretation, inference, evaluation, explanation, induction, and deduction. The Overall score indicates a person's ability to succeed in educational or job environments that require rational decision-making and deliberate problem-solving.
Analysis	Analytical reasoning abilities help individuals to recognize assumptions, reasons, and assertions, as well as to study how they combine to generate arguments. We employ analysis to extract information from charts, graphs, diagrams, oral communication, and written materials. Individuals with high analytical abilities pay close attention to patterns and details. They classify a situation's components and establish how those components interact. Strong interpretation abilities may bolster the quality of analysis by giving context for what someone is expressing or what something implies.
Inference	The ability to infer from arguments and facts enables us to reach conclusions. When we make intelligent recommendations and guesses, we employ inference. The ability to infer the required or extremely likely implications of a given set of facts and situations. Conclusions, hypotheses, suggestions, or judgments based on flawed analysis, disinformation, inadequate data, or biased assessments may prove to be incorrect, even if they were obtained with superior inference abilities.
Evaluation	Evaluative reasoning abilities help us to determine the reliability of information sources and the assertions they make. Additionally, we use these abilities to ascertain the positive or negative points of arguments. We may evaluate the quality of analyses, interpretations, explanations, inferences, alternatives, views, beliefs, ideas, proposals, and conclusions by using assessment abilities. Strong explanation abilities may contribute to the production of high-quality evaluations by giving the facts, justifications, techniques, criteria, or assumptions that support the assertions and conclusions reached.
Deduction	Making decisions in clearly defined environments where rules, operational circumstances, basic beliefs, values, policies, principles, processes, and language all have a significant influence on the result requires good deductive reasoning abilities.

applications, counseling individual students, assessing learning outcomes, program evaluation, accreditation, and research.

- The CCTST is often used in business settings to test job applicants' reasoning abilities as part of a thorough and cost-effective hiring process or as part of a staff development plan.

The CCTST scales and their definitions are provided in Table 2.

	Deductive reasoning proceeds with exactitude from the presumed validity of a collection of beliefs to a conclusion that cannot be wrong if the collection of beliefs is true. Deductive validity is logically precise and unambiguous. There is no place for doubt in deductive validity unless one modifies the meanings of words or the syntax of the language.
Induction	Inductive reasoning is used to make decisions in ambiguous situations. When we make inferences about what we believe must be true based on analogies, case studies, past experience, statistical analyses, simulations, hypotheticals, and familiar events and patterns of behavior, we are using inductive reasoning abilities. As long as there is a remote chance, however remote, that a highly likely conclusion is incorrect, inductive reasoning is used. While inductive reasoning does not give certainty, it may provide a firm foundation for trust in our findings.

3.3.2 The California Critical Thinking Disposition Inventory (CCTDI) (1992).

The CCTDI (Facione, 1992/2011) was developed, validated, and used to assess students' disposition toward critical thinking (CT). Except for the CCTDI, no instruments have been identified in the literature that claim to test the dispositional aspect of CT validly and reliably. The current available on the market assesses CT abilities, such as the capacity to make accurate inferences, analyze statements effectively, and evaluate reasoning accurately. These instruments, in general, predate the Delphi Research Project (Watson & Glaser, 1980; Ennis et al., 1985; Ennis & Weir, 1985) and hence make use of less rigorous theoretical formulations of the CT concept. The California Critical Thinking Skills Test (CCTST) (Facione, 1990, 1992, 2011) is one instrument that relies on the Delphi concept. It is frequently applied to evaluate the CT skills of learner samples (Carter-Wells, 1992; Love, 1993). Due to the fact that the CCTDI seems to be the main independent test of the tendential dimension of CT, convergent validity research comparing multiple CT disposition assessments was not feasible at the time. However, strong relationships between specific CCTDI scores and known psychological scales targeting related topics have

been identified, indicating concurrent validity (Hight et al. 1993).

Face validity is not always desired in self-report attitudinal inventories. On the one hand, it seems as if an attitude tool with poor face validity does not achieve its stated purpose. Furthermore, an effective-face-validity attitude test may induce in certain participants the inclination to reply with the socially anticipated reaction rather than an authentic self-report. In terms of face validity, college professors who took the CCTDI readily admitted that the item prompts struck them as suitable for the intended disposition. For example, it's difficult to identify someone as a genuine truth seeker if they agree with comments like these: "I seek facts that support my ideas, not facts that contradict them", "Many questions were just too terrifying to ask", and "I already know what I believe; why should I pretend to consider my options?" Individuals who score low on the open-mindedness measure often agree with the following statements: "Others have the right to their ideas, but I don't need to hear them" and "You were not entitled to your viewpoint if you were manifestly wrong."

It consists of 75 statements, divided into seven subscales: Truth-seeking, Open-mindedness, Analyticity, Systematicity,

Self-confidence, Inquisitiveness, and Maturity. The CCTST scales and their definitions are provided in Table 3.

Table 3. CCTDI scales, based on the Insight Assessment CCTDI website (Insight Assessment 2016a) and the user manual (Insight Assessment 2017a)

Scale	Scale Description
Overall score	The general scale of critical thinking disposition.
Truth-seeking	The act of continuous pursuit of extensive knowledge on any subject is known as truth-seeking. It involves following arguments and facts wherever they may lead, even if they challenge one's deeply-held beliefs. Truth seekers are not afraid to ask difficult and sometimes unsettling questions. They diligently gather and consider all relevant information, making a conscious effort to avoid letting bias or preconceived notions hinder their quest for knowledge and truth. On the contrary, prejudice stands in stark contrast to the truth-seeking mindset, as it disregards sound arguments and pertinent data in order to evade confronting challenging concepts.
Open-mindedness	The disposition to allow individuals to express their opinions even when one disagrees is known as open-mindedness. Open-minded individuals show tolerance for the viewpoints of others, recognizing that we often have ideas that only make sense from our own perspectives. In the context used here, open-mindedness is crucial for preserving peace in a diverse and intricate society where individuals approach issues from various religious, political, social, familial, cultural, and personal standpoints. Intolerance represents the complete opposite of open-mindedness.
Analyticity	The act of being forward-thinking involves actively seeking out what may occur in the future. This entails anticipating both the potential positive and negative implications and outcomes of various circumstances, decisions, ideas, and plans. Conversely, the opposite of objective truth is to be indifferent towards consequences and neglect to consider the subsequent events that may unfold when making decisions or thoughtlessly accepting ideas.
Systematicity	The act of addressing issues in a disciplined, methodical manner. The opposite is disorganization. An individual proficient in systematic thinking may lack knowledge of specific techniques or struggle with certain problem-solving strategies, but they possess the inclination and inclination to approach problems and challenges in an organized and orderly way.
Self-confidence	The act of utilizing self-reflection to address problems and make choices is known as introspection. Trust in reasoning, similar to the other characteristics explored in this analysis, applies to individuals as well as organizations. A family, team, company, community, or society can depend on rational judgment to resolve issues and accomplish objectives. Conversely, distrust in logic manifests as a reluctance to employ comprehensive reasoning and contemplation when forming judgments or deciding what to believe or do.
Inquisitiveness	Refers to the inclination to seek knowledge, regardless of its immediate or apparent practicality. It entails a genuine curiosity and enthusiasm for acquiring new information and understanding the underlying reasons behind phenomena, even when the immediate impact of such knowledge may not be readily apparent. Conversely, indifference stands in stark contrast to curiosity.
Maturity	The act of acknowledging the intricacies of problems while still striving to make informed decisions is a characteristic of a discerning individual. A mature individual understands that there may be multiple valid solutions but also recognizes the

importance of reaching a conclusion even in the absence of complete knowledge. Conversely, cognitive immaturity involves behaving recklessly, distorting one's thinking, wasting time, stubbornly refusing to change when presented with logical reasoning and evidence of error, or arbitrarily altering ideas without adequate justification.

3.4 Data Collection Procedures

To address research question number one, "Do gender-based differences have any significant effect on the improvement of EFL learners' argumentative writing skill through synthesizing a critical thinking disposition and action learning approach?" the researcher investigated the critical thinking dispositional features improvements of the learners in the course of the study and investigated these improvement results based on the pretest and posttest scores.

To address the first question of the study, the researcher initially examined the principles of the CCTST and administered the California Critical Thinking Disposition Inventory (CCTDI) at the beginning of the course. The CCTDI comprises seven categories: inquisitiveness, self-confidence, truth-seeking, open-mindedness, analyticity, systematics, and maturity (Facione et al., 1994). Following this, the researchers employed action learning approaches for instruction. As previously mentioned, the researchers divided the sample into two groups at the outset of the study: males (n=48) and females (n=102). Both groups were given the test to assess their current critical thinking disposition and abilities. Subsequently, the pretest and posttest results were compared based on their gender after the treatment stage.

Upon the introduction of the teaching material, which was "*The Practical Writer with Readings 9th edition*" the researchers proceeded to administer it to a total of 150 intermediate learners (N=150) who had

scores from the Oxford placement test falling within ± 1 standard deviation from the mean. These learners were selected based on convenient non-random sampling. Subsequently, the participants were divided into two groups: the male group, consisting of 48 participants, and the female group consisting of 102 participants.

The CCTDI questionnaire was applied to both groups prior to the treatment. This test was used to evaluate the critical thinking disposition of both male and female EFL learners. Due to the fact that the participants in both groups' proficiency was intermediate, the English version of the questionnaire was employed in this research. However, the questionnaire manual helped participants through the process of filling out the questionnaire. The time allocated for the questionnaire's 30 questions was about 40 minutes.

Before beginning the study's treatment stage and collecting the data for question number two, one of the researchers, who was the instructor, outlined the requirements to the EFL learners in both groups to avoid any potential distractions.

The learners in both groups received the same quantity of training, the same manner of education, and the same textbook throughout the research, with their group members in the classroom discussion based on the action learning strategies environment. Participants in both groups used the action learning methodology and were then instructed to debate the issues with their peers during the last 45 minutes of each session.

At the end of the term of treatment (16 sessions), the argumentative writing posttest was given to both groups. The topic in the posttest was different to the one which was used in the pretest. It should be mentioned that, in the pretest, learners were not told that they would take the same topic at the end of the course.

To answer research question number two, "Do male and female Iranian EFL learners show any significant differences considering critical thinking dispositional features improvements in their writing course or not?" Gender is a broad phrase that refers to the male and female characteristics that contribute to an individual's psychology and social role, having an effect on how people think, behave, and experience a phenomenon inside the self. According to the description, males and females may vary in terms of thinking abilities and dispositions. Fuad et al. (2017) claimed that males and females have equal conceptual knowledge, but males are better at problem-solving. On the other hand, Taghva et al. (2014) found no significant association between male and female critical thinking. On the other side, Yenice (2011) asserts that critical thinking dispositions vary depending on the sex of the learner, which benefits female students. The researcher attempted to study gender disparities in the development of argumentative writing reasoning in question number one.

In the pretest phase for collecting related data for research question number one, the researchers again used the California Critical Thinking Skills Test (CCTST) and action learning strategies to assess the impact of critical thinking disposition and action learning on their argumentative writing improvement through a gender-based view.

As it was stated, the researchers in question number one tried to investigate gender-based differences effect on the improvement of argumentative writing skill through synthesizing a critical thinking disposition and action learning approach. In doing so, at first, they reviewed the CCTST principles again. The normal routine of teaching the main source was conducted, but with a minor difference in homework for female and male EFL learners; for collecting the related data and effect of the treatment, the researcher assigned male and female learners homework topics in two different topics at the end of each session, and based on the action learning principles designed a small group of eight female learners and eight male learners to work and discuss and brainstorming the topics with each other.

As mentioned earlier, the (CCTST) principles were administered as both the pretest and the posttest in their argumentative writings, so after the treatment stage, the researchers again gave this test to EFL learners to assess the impact of gender-based differences on argumentative writing development.

The following eight sessions of the study were classified as experimental because they focused on developing higher-order thinking abilities. In each session, the teacher introduced learners to higher-order thinking skills based on the CCTDI (California Critical Thinking Disposition Inventory). The advanced section covered levels of analysis, systematicity, maturity, synthesis, and assessment. Each level addressed a different set of questions. For instance, first-level questions included contrasting and generalizing, while second-level questions involved categorizing and contrasting. Third-level questions focused on drawing conclusions and justifying them. Moreover, EFL (English as a Foreign

Language) learners were taught specific learning strategies that aligned with the different levels of CCTDI principles.

After completing a series of sixteen treatment sessions that were guided by CCTDI features, the investigator proceeded to administer the CCTDI once more to the EFL learners. This was done in order to improve EFL learners' argumentative writing through critical thinking disposition from gender-related differences.

In the last treatment session, or session 16, the posttest was administered in all five groups. The participants were directed to compose an essay comparable to the pretest but on a different subject. To expand on the prospective benefits of critical thinking disposition, the posttest writing scores of the students were compared with their pretest grades. Using the CCTST writing rubric, three experienced instructors who have taught English composition courses for more than ten years graded the writings of all groups of participants.

The CCTDI questionnaire was designed to investigate the attitude of the research samples and their effectiveness in enhancing EFL learners' argumentative writing. The questionnaire was conducted in an online (Google Doc) setting. EFL learners ($n=77$) who answered the CCTDI questionnaire items designed and uploaded by the researchers. This online questionnaire was conducted to enhance the results by collecting more in-depth data from learners and teachers about their attitudes toward the English language, strategy use, and views toward having a critical thinking disposition in education.

3.5 Data Analysis Procedures

The researcher employed the Critical Thinking Disposition Inventory (CCTDI)

and the California Critical Thinking Skills Test (CCTST) to collect data for both inquiries. Subsequently, the researchers utilized the CCTDI to evaluate the findings. The CCTDI yielded eight grades, including seven scale-related scores and an overall total score. According to Facione et al. (1996), individuals with a positive disposition toward critical thinking typically gained five or six points for each item, while others with a weak inclination scored three or fewer points per item. These scores were then converted into statistical measures ranging from a minimum of 30 points to a maximum of 60 points. An individual scoring above 50 on any of the sub-measures demonstrates a robust disposition, whereas a score exceeding 40 indicates a favorable disposition. Scores falling between three and 39 suggest an ambivalent disposition. A score of 30 or below signifies a negative inclination, while a score between ten and 20 indicates a significant negative disposition. The highest total score was 420. A total score of less than 280 indicates a notable deficiency in critical thinking capacity. Scores ranging from 280 to 350 are considered favorable, while scores of 350 or more strongly indicate overall strength in a specific disposition (Facione et al., 1997).

In order to enhance grading, learners maintained a record of their answers to the CCTDI items on answer sheets. All 75 items provided six options for selection. The instructions for optical scoring contained precise guidelines on how to interpret and respond to each of the six possible choices. Furthermore, Facione et al. (1996) provided supplementary instructions on arranging the items based on the relevant sub-scales, aggregating the scores for each item to determine the raw scale score, normalizing each scale score, and calculating the overall score.

4 RESULTS

4.1 Gender-based Differences in the Two Groups

In the present study, attempts were made to determine whether there were gender differences at work while the EFL learners in the EGs were exposed to the treatment and the CGs received conventional

instruction. To this end, teaching conditions and gender were regarded as two independent variables, and argumentative writing was considered as the dependent variable; thus, a two-way ANCOVA was conducted to help clarify the possible effects of gender (and the method of instruction). The results of the two-way ANCOVA analysis are provided in Tables 4 and 5:

Table 4 Descriptive Statistics for Writing Posttest Scores of Males and Females in the EGs and CGs

Group	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Exp G1	Male	17.847a	.323	17.208	18.486
	Female	18.434a	.268	17.904	18.965
Exp G 2	Male	17.815a	.326	17.171	18.459
	Female	18.033a	.221	17.597	18.469
Exp G3	Male	17.318a	.304	16.716	17.920
	Female	17.437a	.243	16.957	17.917
cont G	Male	14.304a	.150	14.008	14.600
	Female	14.454a	.166	14.127	14.782

Note: Covariates appearing in the model are evaluated at the following values: Pretest = 13.5617.

Table 4 shows that the difference between the male and female learners in the EGs was very insignificant in experimental groups: critical thinking (17.84 vs. 18.43), action learning (17.81 vs. 18.03), and synthesizing critical thinking and action learning (17.31 vs. 17.43) and also the male and female learners in the CG obtained mean scores which were only slightly

different (14.30 vs. 14.45). The total mean score for males ($M = 16.81$) was slightly greater than the total mean score for females ($M = 17.10$). In order to see whether the differences between the EGs and CGs and also between the two gender groups on the argumentative writing posttest were statistically significant or not, Table 5 had to be examined:

Table 5. Two-way ANCOVA for the Writing Posttest Scores of the EGs and CGs

Source	df	Mean Square	F	Sig.
Corrected Model	12	65.096	78.104	.000
Intercept	1	171.780	206.107	.000
Group	3	23.553	28.259	.000
Gender	1	.299	.358	.551
Pretest	1	68.145	81.763	.000
Group * Pretest	3	12.092	14.508	.000
Gender * Pretest	1	.543	.651	.421

Group * Gender * Pretest	3	.237	.285	.836
Error	137	.833		
Total	150			
Corrected Total	149			
Note. a. R Squared = .872 (Adjusted R Squared = .861)				
Tests of Between-Subjects Effects Dependent Variable: Posttest				

The *p*-value under the Sig. column for Gender was found to be smaller than the .05 significance level, which means that belonging to different gender groups did not have a significant effect on the argumentative writing performance of the learners. The interaction of the two independent variables did not have a significant effect on the EFL learners' performance as the *p*-value corresponding to the row labeled Groups*Gender was found to be larger than the alpha level of significance (.421 > .05).

4.2 Gender and Critical Thinking Dispositional Features

Another aim of the present study was to unearth whether there were any gender-based differences in the critical thinking dispositional features of male and female Iranian EFL learners. To this end, the total score for critical thinking dispositional features was calculated from the learners' responses to the CCTDI questionnaire. The total scores obtained for male and female learners were compared via an independent-sample *t*-test. The results of the *t*-test are presented in the following tables:

Table 6. Descriptive Statistics for Comparing CCTDI Scores of Male and Female Learners in the EG

Gender	N	Mean	Std. Deviation	Std. Error Mean
Male	22	355.22	13.66	2.91
Female	55	325.94	16.92	2.28

As can be observed in Table 6, there was a difference between the CCTDI scores of male (M = 355.22) and female learners (M = 325.94). To unfold whether the difference

in the CCTDI scores of the two gender groups was statistically significant or not, the following t-test table had to be examined:

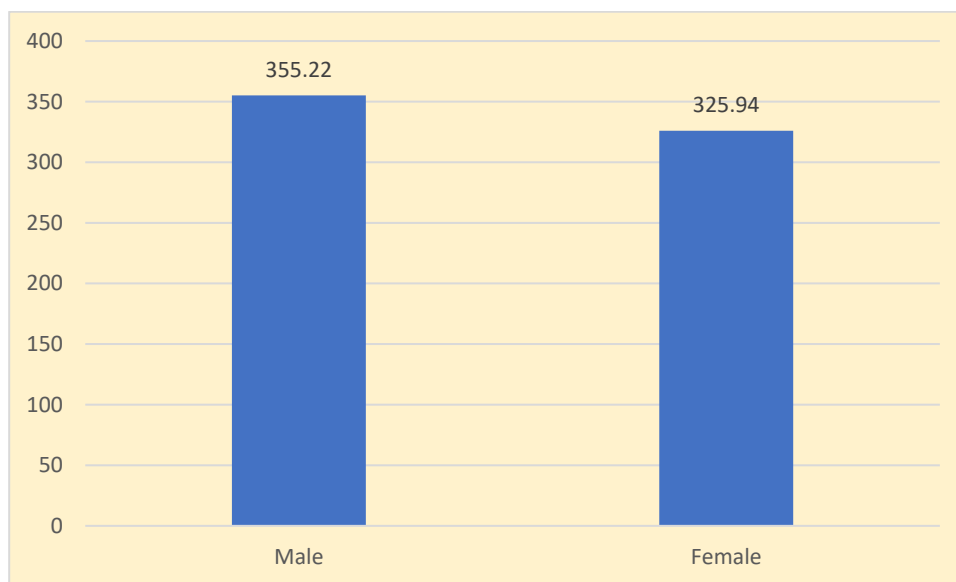
Table 7. Independent-Samples t-Test for CCTDI Scores of Male and Female Learners in the EG

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F.	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.42	.23	7.21	75	.000	29.28	4.05	21.20	37.36
Equal variances not assumed			7.91	47.71	.000	29.28	3.70	21.83	36.72

Table 7 shows that there was a statistically significant difference in CCTDI scores for males (M = 355.22, SD = 13.66) and females (M = 325.94, SD = 16.92), $t(75) = 7.21, p = .000$ (two-tailed). Thus, it could be inferred that

male EFL learners managed to obtain significantly higher CCTDI scores than their female counterparts in the EGs. Figure 1 depicts the CCTDI scores of the two gender groups.

Figure 1. CCTDI mean scores of the male and female learners in the EG



Note. These scores revealed that the two gender groups in the EG were drastically different from each other, as their CCTDI scores were concerned. This means that there is a significant difference between the critical thinking disposition of the male and female EFL learners participating in this study.

5 DISCUSSION

The statistical analysis of the results of the present study demonstrated that the differences between male and female EFL learners were insignificant and belonging to different gender groups that did not have a significant effect on the argumentative writing performance of the learners.

To test the first research question, an independent-sample t-test was performed on the total score for critical thinking disposition obtained from the questionnaire. The statistical analysis of the results showed that there was a statistically significant difference in CCTDI scores for males and females. Thus, it could be inferred that male EFL learners managed to obtain significantly higher

CCTDI scores than their female counterparts in the EG.

EFL teachers should try to make learners aware of the principles of critical thinking to increase learners' willingness to learn about a variety of topics, have an interest in learning more and be knowledgeable, be fond of searching for possibilities to apply critical thinking skills, be self-assured in their own reasoning ability, be willing to consider opposing opinions, develop adaptability in weighing options and viewpoints, promote a keen awareness of potential unexpected cases in order to foresee their effects, be aware of others viewpoints, be objective in evaluating reasoning, and have wisdom in postponing, making, or changing decisions readiness to review and alter positions when honest contemplation indicates that change is required.

When investigating the role of gender in language learning, the researchers should take into account the different ways in which gender may influence language usage and improvement. Gender is

an important factor influencing language practice and learning. The reason can be related to biological and psychological effects or sociocultural differences that can greatly influence one's success in language development. The subject of gender influence as male and female in cognition or educational success has a long history, but since the 1970^s, it has gained more significance in educational studies. The most important dimension of this concern, which should be focused on, is that no credible researcher has ever presented results that male-female differences on any scale of intelligence level are unusually significant compared to the level of differences within either gender. By way of explanation, even in fields where significant gender issues are recognized, these distinctions are so minute and varied that they have minimal pragmatic significance Hallers-Haalboom et al. (2020).

As it was observed in this study, gender was not found to have a profound impact on writing improvement as far as critical thinking and action learning were concerned. This is in fact, in line with previous research whereby contradictory results were obtained. The study by Hashemi et al. (2014) can be considered one that is similar to the present dissertation in that both investigated the effects of CT on argumentative writing among EFL learners. Similar instruments were also employed; they both focused on gender differences, but in the gender dimension, their results were different since, in that research, gender differences played an important role in learners' argumentative writing development.

In a study conducted by Nayernia et al. (2020), the potential influence of gender and age on participants' argumentative writing was examined. The study focused on the application of the Toulmin

(1958/2003) model of argument structure. A corpus of argumentative essays written by 250 Iranian postgraduate English language learners, comprising both male and female individuals, was utilized for data collection. The participants' age and gender were treated as independent variables. The study analyzed six key categories of argumentative structure within the learners' writing tasks and employed MANOVA to examine the observed frequencies. The findings indicated that there were no statistically significant differences between participants' age and gender and the type and frequency of Toulmin elements in argumentation.

Nayernia et al. (2020) investigated the influence of gender and age on EFL learners' argumentative writing development, but the present study investigated the role of gender in argumentative writing improvement and critical thinking disposition. Like Nayernia et al.'s study, the participants' gender was treated as an independent variable. Both study results were similar to each other in that gender did not play an important role in the Iranian EFL learners' argumentative writing improvement.

Thus, it is axiomatic that when teachers and materials developers synthesize these principles and strategies in their methodology and writing programs, the writing ability of the learners is better improved. The learners are enabled to accomplish planned change in their observable behavior in the issue field through responsible engagement in a genuine, difficult, and stressful situation. Theory and practice would be merged, which leads to the advancement of the individuals and organizations to the next level of output, growth, employment, and even loyalty (people who are growing and learning rarely leave the organization). This is how people and

teams can learn new things while focusing on conflict resolution and taking action. In effect, the members of a class or group would collaborate in order to overcome obstacles via action and reflection. It could become a multi-purpose, systematic activity, depending on how well it is linked to the group's structure and made importance to the individuals' way of life.

6 CONCLUSION

The current research aimed to investigate the role of gender and critical thinking disposition in enhancing argumentative writing development. It was concluded that (a) critical thinking disposition and gender differences had a significant effect on enhancing Iranian EFL learners' argumentative writing, (b) there was not a significant gender-based difference between the writing scores of the learners in this study, and (c) gender did play a role in the critical thinking disposition scores of the learners and male learners significantly outperformed female ones in the CCTDI scores.

The results of this study, as well as other studies, prove the fact that the absence of CT skills from EFL courses results in EFL students who are disadvantaged by the opportunity to learn how to think critically (e.g., learners in the control groups) mostly weaker than those EFL learners who benefit from CT instruction. On the other hand, incorporating CT and gender-related concerns is bound to lead learners to think more critically about the information they learn, test the validity of materials, attempt to consider alternative theses, evaluate evidence, etc. The effective results experienced from the unification of CT and gender-related concerns in writing courses in an EFL context like Iran guarantee more positive outcomes if CT and gender-related concerns are combined in L2 writing courses.

Another conclusion that the present study proposed is that CT is teachable in EFL contexts. Gender differences and their viewpoints toward critical thinking disposition could be outlined and highlighted. However, the related literature that investigated different approaches and techniques to facilitate CT in EFL argumentative writing is limited. Conducting more research is required in this field.

All researchers face challenges, difficulties, and restrictions in the process of completing a research project, and this research is no exception. They involved the participants taking part in this study, the university administrators who assisted the researcher in conducting the study, and the time of data collection. The participants in this study were EFL learners who were learning at the university. The groups of subjects for this study were selected during one educational semester. The conclusion is valid as long as the scope of this study allows. Because of the limitations imposed on the research, generalizing the findings of the present study must be made carefully.

The generalizability of the findings is also restricted by the sample size. It seemed that the size of the sample was small, and larger samples may be better able to analyze the effect of critical thinking and action learning on improving argumentative writing. The participants of the study were EFL learners. They were also non-native English learners who taught English mostly at the university. Therefore, the range and variety of participants were also limited. Thus, one of the limitations of this study pertains to its generalizability. The major limitation of the study was that the subjects in the study were not selected randomly. A convenience sample was used. The small size of the sample groups shed doubt on the universal

validity of the observed significance. A study with more participants must be replicated to gain more reliable and generalizable outcomes.

Some delimitations of the study include that the researcher was a teacher at the university from which the sample was selected. Additionally, the sample size was small since the study was conducted in five online classes. The opportunity to record and analyze the classes after being held helped the researcher to overcome the

pitfalls of the online classroom environment. Although the sample size was small, the online environment provided a useful opportunity for the researcher to gather different EFL learners from different cities of the Kurdistan province, a context in which in-person classes were impossible.

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