





# Impact of Synthesizing Critical Thinking Dispositional Features and Action Learning Approach on Enhancing Iranian EFL Learners' Argumentative Writing Development

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## ABSTRACT

With the advancement of new teaching methods and approaches in foreign language teaching and learning, critical thinking has gained popularity in modern language education. This quasi-experimental study evaluated the possible impact of synthesizing critical thinking dispositional features and action learning on the Iranian intermediate EFL students' argumentative composition improvement skills. From the 400 EFL learners at Islamic Azad University, Kurdistan branch, one hundred and fifty mingled intermediate-level EFL university learners were chosen based on their scores received from the OQPT and equally distributed into three experimental and two control groups. All participants were given two standard writing tests during the pre and post-treatment phases, followed by CCTST principles. In EG1, the researcher taught argumentative writing based on critical thinking dispositional features; in EG2, he taught argumentative writing based on the principles of action learning approach; and in EG3, he taught argumentative writing by synthesizing critical thinking dispositional features and the principles of action learning approach. Two control groups received conventional writing instruction: one group consisted of only males (EG1), and the other only females (EG2). The study's results revealed that while the participants in both The EGs and CGs elicited a statistically important development in the posttests, those in the three EGs all outperformed those in the CGs. In the order of significance, critical thinking dispositional features, then action learning approach and lastly synthesizing critical thinking dispositional features and action learning approach had a meaningful impact on improving the argumentative essay writing skills of Iranian intermediate EFL students.

**KEYWORDS:** Action learning; Argumentative writing; California Critical Thinking Skills Test (CCTST); Critical thinking dispositional features; Iranian EFL learners;

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## 1. Introduction

A stage in a learner's academic life is defined by two significant objectives; one by entering university and receiving higher education and then completion of their academic education. At this stage, they should be able to (a) gain competency about their study field or academic content, as well as the significant level, (b) critically evaluate and assess about what they have

taught and studied and other subjects or challenges they encounter in daily life (Schafersman, 1991). While most learners regularly achieve the first objective, they struggle with the second one, which is their educational weak point (Halpern, 2014; Bailin et al., 1999).

Even though having critical thinking dispositional features in the academic considered as the output of university graduation, students who study English major have to achieve this "academic objective" (Siegel, 1985). In and out of the academic context, EFL students devote considerable amount of time studying the English language and practicing English language in natural contexts. As a result, while practicing English in the academic context or in the natural contexts, they cannot simply memorize or rehearse the language without evaluating their contents critically.

One of the important and crucial yet difficult skills in the educational process is developing writing skills, particularly in language learning. According to Okasha and Hamdi (2014), writing challenges can result from a lack of adequate approaches that impede learners from accessing knowledge they already have. Another aspect that affects students' writing is their attitude toward English writing. According to Phinney (1991), L2 writers experience more negative attitudes and fear than when writing in their language. As Peng (2011) stated, students frequently feel inept when writing in a foreign language. The EFL students may find it challenging to write in a conventional classroom due to feelings of fear, uneasiness, or incompetence (Hwang et al., 2017). They may experience anxiety in writing when looking for proper expressions and hunting for ideas (Yang, 2016). In addition, they have few opportunities to improve their language abilities in a conventional school setting (Hwang et al., 2017; Lin et al., 2018). As a result, researchers have suggested that giving EFL students more opportunities to practice writing is the key to enhancing their writing skills (Lin et al., 2018).

The majority of Iranian EFL students, like other learners around the world, have problems with writing. The leading causes of this challenge appear to be a lack of focus on productive abilities on the one hand and poor instruction quality on the other (Shokrpour & Fallahzadeh, 2007). Because writing is considered a product dependent on other language and organizational skills, any deficiencies in those areas may hurt writing. Nonconventional but empirically proved writing strategies like strengthen their critical thinking dispositional features could help learners improve their writing and attitudes toward writing. Strategies based on a knowledge of how the mind works can assist reduce cognitive load and, as a result, make writing easier (Mayer, 2002). The introduction of new technologies into education results in developing novel models of teaching and learning in an interactive and engaging learning environment. From a methodological standpoint, 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 need for developing argumentative writing among Iranian EFL learners through critical thinking dispositional features and action learning has become one of the most important goals of the Iranian EFL teaching context (Fahim & Eslamdoost, 2014). Effective and well-organized argumentative writing is believed to be a product of familiarity with critical thinking dispositional features as well as an analytical task where a synthesis of multiple skills is implemented via practicing action learning with cooperative learning. Success in writing skill demands the development of complex level of thinking and reasoning skills. Discussions, arguments, and challenge activities in the manner of action learning are crucial for the formation of critical thinking among EFL learners, Freely and Steinberg (2000). Unfortunately, there has been little researches done in the Iranian EFL setting to demonstrate the effectiveness of using critical thinking dispositional features and action learning approaches for promoting argumentative essay writing among Iranian EFL learners, since the concentration of English language pedagogy in Iranian EFL contexts has traditionally been on training EFL learners to be proficient in language skills. According to Khorasani and Farimani (2010), traditional methods of instruction are persisted to be employed in a foreign English language teaching setting like Iran; in other words, students perceive their instructors as a mere source of information while instructors perceive their pupils as pure receivers of knowledge, much like a black box, disregarding critical concepts such as developing analytical thinking among EFL learners and practicing on students' autonomy. In addition to the difficulties stated above, teaching materials remain deficient in critical thinking skills as an academic goal. This focus invariably leads to a disdain for a more important goal of language teaching, which is to think and behave thoughtfully, and as a consequence, they will be unable to be successful teachers after graduation, regardless their good exam results. When our students are intently participating in the course of learning, they may instantly experience the benefits and downsides of their course materials, assuring that classrooms are no longer a place of error and trial for them in the future.

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 material they encounter on a regular basis. Universities, on the other hand, are often far beyond this objective. Pithers and Soden (2010) determined the paucity of substantial distinction in the reasoning skills of graduate and undergraduate students after conducting a study. This indicated that the universities involved in the research did not adequately develop their students' critical thinking abilities.

Action learning is a means of integrating thought and practice. Education entails action... Given that action learning argues that we may best conquer any unknown task by collaborating with others who have a similar goal, its developers should be built and released collaboratively by people who intend to benefit from them. Continuous learning requires an open, inquiring mind, the capacity to listen, question, and examine ideas. Through the use of action learning approaches and strategies as an independent variable in this study, EFL learners were able to bring together diverse writing strategies and materials within the same contexts in order to practice the topic, deliberate the opinions, and analyze their comprehension in a credulous, and encouraging context, and thus develop a critical thinking-based model as the dependent variable, the results of which could be derived from the action learning procedures.

Considering the critical thinking dispositional features and its significant role in enhancing EFL students to "investigate, confront, and insist explanations and rationalizations for what is learned" (Siegel, 1985, p3), this study aimed to probe the possible outcomes of synthesizing critical thinking dispositional features and action learning on Iranian EFL students' argumentative composition development.

Developing writing abilities is critical not just for academic success, but also for career success (Geiser & Studley, 2001). If learners do not acquire proper writing abilities in an educational setting, they may be unable to explain ideas, dispute positions, and examine diverse perspectives—all of which are necessary skills for persuasive communication with classmates, colleagues, coworkers, and the larger community.

Argumentative writing has always been a difficult subject for EFL and ESL students to master. Second language learners must invest significant effort in comprehending the most critical components of argumentative writing, including hook, 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 et al. (2010) concentrated on Iran's educational system. They stated that under such educational system, learners' minds are seen as a repository of knowledge and information, rather than as 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.

The value of this study may be derived from the attempts to highlight the qualities of the critical thinking dispositional features and action learning strategies for teaching argumentative writing in the Iranian context. The current study might provide substantial evidence of critical thinking dispositional features impact on learners' argumentative writing development. Furthermore, the study's results could be particularly significant for English language teaching in Iran. It could also be reflected in other proficiency levels by identifying and analyzing the effect of the critical thinking dispositional features and action learning approach on EFL learners' argumentative writing development and attitudes toward writing. In addition, as critical thinking dispositional features and action learning, can open up new avenues for the advancement of English language teaching, enabling the implementation of the concept of lifelong learning and the customizing of the learning process. Additionally, it creates new options for educational advancement and personalization of the learning process. Mastering critical thinking abilities cannot replace teachers, but it can significantly increase educational quality when used in conjunction with established conventional approaches. Critical thinking dispositional features integration into foreign language education was increased by public demands and expectations for the modernization of the learning process. Therefore, the study could expand the strategies available to EFL instructors in the Iranian EFL settings.

## 2. Literature review

Dewey (1933, p.118) described thinking critically as "the agile, continuous, and complete examination of an idea or alleged field of study taking into consideration premises that sustain it and the subsequent deductions that it leads to." Recently, critical thinking has been defined as "purposeful, self-regulating thinking that leads in perception, analysis, and deduction, as well as a description of the evidentiary, intellectual, disciplinary, purposeful, or environmental components that underpin that decision." (Facione, 1990, p.2). Halpern (1996, p. 5) described critical thinking as "intentional, reasoned, and goal-directed reasoning — the kind of thinking that occurs when problems are solved, inferences are made, probability is calculated, and judgments are made." It is regarded to be a critical aspect in enabling people to reach their full capacity (Meyers, 1986) and is one of most defining qualities of twenty-first-century success (Huitt, 1998).

Paul (1994) classified two types of critical thinking: weak and strong. As he asserts, inadequate critical thinking abilities are indicative of course contents rote memorization. While, the other type form of this concept considers the thinking and logical abilities that are really used and exercised by learners. Additionally, Paul (1985) describes critical thinking as "competency in pose and answer analytical, synthesis, and evaluative questions" (p. 37). Similarly, Brookfield (1987) argues that critical thinking encompasses two related processes: "characterizing and disputing hypothesis, as well as envisioning and investigating alternatives" (p.229).

Samanhudi (2011) examined learners' analytical reasoning in their essay composition at Indonesian public universities. He adopted a case study research design that included two methods of data collecting, namely the documenting of

students' writings and an interview. After that, the data were examined using Critical Thinking (CT) and Systemic Functional Linguistics (SFL) theories, which were confirmed by triangulating technique. Two conclusions were made in relation to the research questions. To begin, despite their capacity to demonstrate critical thinking in their writing, students' texts demonstrated a less nuanced and clear verbalization of their critical thinking. Second, as demonstrated by the interview data, students' incompetence happened as a result of their insufficient understanding of the problem and their inability to use analytical reasoning in their composition. The study's results imply that students need further assistance in order to improve their control of some critical thinking aspects and thereby enhance their critical thinking abilities, particularly their ability to debate, to express thoughts and stances openly and thoughtfully.

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.

Indah (2017) investigated the link between the analytical thinking, composition competence, and subject formality among Indonesian EFL students. The study determined that an unmistakable association existed among the trainees' critical thinking and composition abilities. Additionally, the result proved a direct relationship between their critical thinking and the formality of the topic.

Zhang (2018) reported the influence of internet materials on the positive progress of EFL writers' critical thinking skills. The investigation was directed by functional systemic linguistics (SFL). By exploratory evaluation of instructor-learner discussions, student interviews, and student composition records, his case studies showed that after a course of intense engagement to SFL-based online materials in an EFL composition setting at a Chinese university, EFL authors were able to improve critical thinking skills related to the development of competent educational composition, despite encountering and overcoming obstacles. They adapted to the online materials-focused in classroom by teacher intervention and their own attempts, as evidenced by their use of SFL-based categorizations suggested by online materials to assess and assess the coordination between language characteristics and the subject of valued texts and to regulate the content of their own academic writing.

Palavan (2020) investigated the attitudes and beliefs of prospective teachers and their own critical thinking tendencies. In that one group pretest-posttest design investigation was conducted using sampling on purpose. 26 male and 31 female preservice instructors volunteered for the study, for a total of 57 participants. The quantitative data was gathered by the California Critical Thinking Disposition Scale, and for the qualitative data collection the semi-structured interviews were conducted. Students' pre-test scores on critical thinking dispositional features and their scores on the sub-scales of analytical, inviting, intellectual curiosity, and systematicity indicated moderate attitudes in these sub-scales, while their scores on the sub-scales of self-confidence and truth-seeking indicated low attitudes in those sub-dimensions. With the exception of self-confidence and truth-seeking, where learners' results rose from moderate to high, participants' post-test results for critical thinking dispositional features were comparable to their pre-test levels, indicating a moderate dispositional feature.

Luna et al. (2020) in a distant learning university's virtual training program for producing integrative and well-structured arguments. 68 undergraduate EFL students participated in the pre-post study, which used a control group design. The treatment includes detailed teaching through educational videos and practice activities with prompt feedback, all of which were conducted with the use of freely available internet resources (e.g., Moodle). The study's findings indicated that following treatment, participants' written outputs improved in terms of organization, number of counter-arguments, and degree of combination of the various views. However, those items with a medium or maximum level of integration remained scarce. These findings demonstrated how online training in argumentative writing may be successfully utilized in academic contexts.

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.

Hoorijani and Heidari Tabrizi (2023) 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.

A review of the related studies indicated the effectiveness of the critical thinking dispositional features and action learning on the intermediate EFL learners' writing development. It highlights the mediating act of action learning approach in the EFL learning context. Unfortunately, fewer studies investigated the effective role of critical thinking dispositional features



on developing EFL learners' argumentative writing. To fill this gap this research specifically addresses the following research questions:

**RSQ1:** Does using critical thinking dispositional features and an action learning approach have any significant effect on enhancing Iranian EFL learners' argumentative writing skills?

**RSQ2:** If the answer is positive, which approach is more effective in enhancing Iranian EFL learners' argumentative writing skills? The conventional teaching approach, critical thinking, action learning, or synthesizing critical thinking dispositional features and action learning?

### 3. Methodology

In this section, a comprehensive presentation of the design and context, the participants, instruments, data collection procedure, and data analysis procedure of the study are provided.

#### 3.1. Research design and study context

In order to investigate the first question, quantitative approaches were required due to the nature of the study. Relationships were examined and analyzed using quantitative research due to their capacity to permit objective empirical analysis of observable objects. The quasi-experimental design was utilized in the present article to determine the effects of the independent variables (critical thinking dispositional features, action learning) on the dependent variable (argumentative writing), in article writing courses, using innovative vs. conventional teaching strategies began in January 2022 and ended in June 2022 at the Islamic Azad University-Kurdistan branch in Kurdistan, Iran.

#### 3.2. Participants of the study

The research sample was chosen out of a population of 400 sophomore BA learners who are all studying at Islamic Azad University, Kurdistan branch in the majors of English language translation, English language literature, and TEFL. A hundred fifty EFL learners were selected out of these 400 EFL learners based on their received scores from the Oxford Quick Placement Test (OQPT). Then, 150 EFL learners randomly assigned technique were assigned to two homogeneous groups, namely control (n=73) and experimental groups (n=77). Table 1 presents the demographic characteristics of the participants in this study.

**Table 1.** Demographic background of the participants

No. of Learners	150 intermediates
Gender	109 Females & 41 Males
Language	Kurdish, Persian
Major	TEFL, Translation, English Literature
Academic Years	2021-2022

Before conducting the study, the intents and processes of the research were clarified to the participants to get their consensus to cooperate in the research. The researcher also adhered to the ethical guidelines provided by the selected Islamic Azad University. In addition, participants' personal information was also kept confidential to protect their privacy.

#### 3.3. Research tools

To collect high-quality data, the following instruments were used to collect the required data:

##### 3.3.1. Oxford quick placement test (OQPT)

Before starting the procedure of data collection, the researcher used OQPT, as a general placement test for the participants of the study. This test, which was designed by the Cambridge University, covers 60 questions, and has two sections: the first section, covers 40 questions and the second section, has 20 items. The OQPT reliability index was estimated as 0.89; as a result, the researcher was assured that it played an effective research tool in the current study

##### 3.3.2. California critical thinking skills test (CCTST)

The CCTST offers the researchers an accurate tool for measuring the fundamental thinking abilities that are thought to be necessary for active reasoning over what to believe or act in daily life. The thinking abilities of test-takers are evaluated in the CCTST. The CCTST questions and sentences vary in their degree of difficulty and level of detail. The CCTST- version 2000 typically has two-time formats, timed which allocate 45 minutes to complete in timed settings, and untimed. The total score for the California Critical Thinking Skills Test is 34. The researcher used this CCTST as a rubric to evaluate the Iranian EFL learners writing development.

As mentioned above this test has 34 questions, which assesses five classifications of critical thinking skill; these categories are analysis (9 sentences), evaluation (14 sentences), inference (11 sentences), deductive reasoning (16 sentences), and inductive reasoning (14 sentences). The CCTST reliability is reported to be .78 to .80 using Cronbach alpha (Facione, 1990). Khodamorady et al (2006) translated this test into Persian and described an acceptable construct validity scale. They have reported the reliability of .62 for the whole test, .71 for analysis, .77 for evaluation, .77 for inference, .71 for deductive reasoning, and .71 for inductive reasoning, respectively.

### 3.3.3. Writing section of the IELTS practice test used as the pretest and posttest

A pre-writing test was used to assess EFL learners' writing skills, a standardized writing test which was chosen from the NTC TOEFL (2021). This task assesses the ability of individuals to present a clear, relevant, well-organized argument, provide evidence or examples to back up their ideas, and use language correctly. Accordingly, in the writing pretest, learners were asked to discuss the following subject and give their own opinion in the essay task: *"Many people welcome the opening of shopping areas near their homes. On the other hand, some people were strongly opposed to the construction of such facilities. If the opening of a large shopping center in your neighborhood were announced, would you support or oppose its construction?"* (Appendix A). They were expected to offer reasons for and against their positions, as well as a conclusion at the end. Learners were required to write at least 250 words in 40 minutes.

Reliability and validity are critical factors of the quality of a test result. As mentioned before, the researcher selected a topic from the NTC TOEFL (2021), which ensures the reliability and validity of test scores by following to established standards and procedures for the development and implementation of educational assessments.

### 3.3.4. Writing posttest

A post-test was utilized to assess the progress of learners' argumentative writing skills and the possible treatment impacts on learners' writing abilities. Post-test was a standardized writing examination comparable to IELTS Task 2 in which students were required to analyze the following statement:

*"We all have favorite activities that we enjoy. Write an essay convincing reader to try the activity that you enjoy most"* which was selected from the NTC TOEFL (2021). (Appendix B). They were required to include justifications for and against their decisions, as well as a conclusion. Learners were expected to write at least 250 words in 40 minutes. The post-test aimed to see whether critical thinking dispositional features and action learning approach impacted the learners' argumentative writing or not.

## 4. Data collection

At the beginning of performing the study, the investigator obtained approval from the educational board of the institution. The research population was then briefed about the study and told that their cooperation was entirely voluntary and that they may withdraw at any moment without consequence. To achieve the objectives, the study was split into 16-session sections: pre-test administration, treatment administration, and post-test administration. These areas will be covered in further detail in the subsequent sections.

### 4.1. Pretest administration

Before the main study, the OQPT and writing exam were administered to measure the efficiency and writing skills of the learners. The writing pretest was a standard argumentative essay similar to TOEFL written by all participants and scored based on CCTST checklists. The participants (n=150) were divided into two groups (EG 77, CG 73 Students) having met the homogeneity criterion by their OQPT scores. Thus, the researcher had three experimental groups he himself taught. In one group he taught argumentative writing based on critical thinking dispositional features; in the second group, he taught argumentative writing based on the principles of action learning approach; and in the third group he taught argumentative writing by synthesizing of critical thinking dispositional features and the principles of action learning approach. There were also two control groups in this study: one group consisted of only males, and the other only females.

## 4.2. Treatment process

The treatment process started after the OQPT and then participants were distributed randomly into five groups, as the experimental group (three groups) and the control group (two groups).

As mentioned earlier, the researcher used the Oxford quick placement test to distinguish their level of language proficiency and knowledge, then he selected the top 150 EFL learners among those 400 EFL learners who scored higher on the OQPT test as the study's sample size and then placed them into two groups namely control and experimental groups in 5 classes, two control groups, and three experimental groups. The important point which should be mentioned about the treatment of groups was that, the researcher acted as a teacher in both groups via online teaching (Due to the Covid-19 pandemic all classes had to be conducted online). He wanted to directly observe the changing processes in experimental groups in comparison with control groups who followed the conventional method of teaching.

To address research question one, which was: do synthesizing critical thinking dispositional features and action learning approach have any important influence on enhancing Iranian EFL learners' argumentative writing skill? One important point that should be mentioned here was that the focus of it was on the changes the experimental group experienced, without concentrating on the control group. As it was clear from this research question, the research had two independent and one dependent variable, he had to synthesize critical thinking dispositional features and action learning first, then assess their effects on EFL learners' argumentative writing. In doing so he characterized three important basic components of critical thinking dispositional features which were willingness, sensitivity, and ability, which he aimed to assess at the end of the treatment, how? By applying the principles of California critical thinking skills test via employing action learning strategies which is defined according to the World Institute for Action Learning (WIAL) as a process that entails a small group of people tackling real-world issues, taking action, and growing as individuals, a team, and an organization. It assists businesses in developing innovative, adaptable, and effective solutions for resolving critical issues.

**Figure 1.** WIAL solution spheres for action learning



So based on the aims of critical thinking dispositional features (CCTST) and action learning approaches the researcher collected the research data, which elaborated in the pre-test phase of the data collection for the research question number one, the researcher had to employ two research tools; the California Critical Thinking Skills Test (CCTST) and Marquardt model's component of action learning approaches. The idea behind this action learning model was that a learner could comprehend knowledge by working with other classmates or team members in a social setting to find a solution to a problem.

At the onset of the course, the topics of writing were chosen from NTC TOEFL (2021) and given to both groups in the study. The selected topic for descriptive and argumentative modes were, respectively, as follows: *"Many people welcome the opening of shopping areas near their homes. On the other hand, some people are strongly opposed to the construction of such facilities. If the opening of a large shopping center in your neighborhood were announced, would you support or oppose its construction? Use specific reasons and details to support your answer"*. The researcher asked both groups of the study to write an argumentative essay about the topic as a pre-test, and told them it should not be more than 250 words. Selecting this topic had two main important reasons; first, pinpointing male and female EFL learners' attitude toward that topic at the beginning of the study which was investigated in the further sections of the study, and the second reason was to creating a

challenging context for brainstorming their ideas and later analyzing the effectiveness of using critical thinking dispositional features and action learning approach on enhancing argumentative writing development.

After he took the pre-test from both groups which was argumentative writing, the researcher scored both groups' argumentative writing by The Holistic Critical Thinking Scoring Rubric - HCTSR based on the CCTST elements. After finishing the first step, which was giving a pre-test to both groups, and scoring their argumentative writing, the treatment was started in which the main source which was taught to both groups was "Bailey, Edward P., and Philip A. Powell; The Practical Writer with Readings". In the experimental group, the teacher designed a lesson plan based on the principles of CCTST (form A) and action learning to investigate the enhancing effect of synthesizing the critical thinking dispositional features and action learning as independent variables, on argumentative essay writing development and gender-based development as a dependent variable. In doing so the researcher who acted as a teacher employed the critical thinking infusion approach to the teaching of critical thinking through action learning (Marquardt model's component of action learning). In doing so he developed these critical thinking skills by embedding them in the teaching of the learning material, therefore he felt a need to design a lesson plan for teaching the content material so he designed a lesson plan based on Ennis' critical thinking taxonomy and "Bailey, Edward P. and Philip A. Powell, The Practical Writer with Readings" in the foundations of action learning approach based on Marquardt model for teaching it into the experimental group.

The first chapter of the content material started with "The One-Paragraph Essay (Stage I)". This chapter of the book acted as the warm-up for the EFL learners, as we all know the one-paragraph essay was an essay in miniature, so the researcher devoted the first 45 minutes of the class to topic selection, in doing so, first, he explained one of the social problems as "a problem". Since an important key assumption of action learning is that our learners learn optimally when they engage in some kind of activity that they can reflect on and learn from. The challenge provides meaningful, relevant work for the group and establishes a mechanism for experimenting with stored information. Then, after a short introduction in a collaborative way designed to maximize problem-solving and learning, the instructor separated EFL learners into groups, or sets, of 5-10 persons, and gave them the chance to discuss pertinent facts about the particular topic. Action learning approaches problems by first clarifying the nature of the problem, then reflecting on and identifying possible solutions, and finally acting; thus, after talking about the issue in the group, the teacher asked them to volunteer to discuss their perspectives on the issue, and the other groups in the class listened to the group members' representative ideas. After presenting the groups' ideas they discussed the claims and justified their ideas, one of the important points of the discussion was to defend their ideas by logical reasoning since their final product was a coherent and cohesive argumentative essay.

Following their discussion and exchange of ideas, the instructor invited them to choose a theme for the challenge. After they selected a topic for that specific problem, the argumentation stage began; group members discussed practical solutions to the topic, determined the ideas' strengths and weaknesses, and verbally introduced supporting details and ideas about the topic and topic sentence. The objective of introducing the problem-solving ideas was to emphasize the importance of action learning, which stated a valuable principle. By creatively resolving challenges throughout the decide-on-an-answer or solution phase of critical thinking, action learning groups have developed tactics and answers that primarily assist them in generating ideas for their argumentative writing. The final step in the critical thinking taxonomy was to enable learners to make judgments about their final product, specifically the conclusion section of their writing; thus, the teacher served as an action learning coach in this final step, connecting the principles and critical thinking dispositional features to action learning. Cognitivism emphasized the role of intentionality on optimizing education in this regard. The action learning coach's role was to guide groups through the process of analysis on their listening style, reframing the situation, analyzing assumptions, and producing learning via questions.

After the researcher finished the 16 sessions of the treatment phase, for the assessment of its results, he took an argumentative writing post-test from both the control and experimental group, about the topic "*We all have favorite activities that we enjoy. write an essay affecting the reader to try the activity that you enjoy most*", as a post-test, and told them it should not be more than 250 words. As mentioned earlier choosing this topic had a main important to creating a challenging context for brainstorming the learners' ideas and later analyzing the effectiveness of using critical thinking dispositional features and action learning approach on enhancing their argumentative writing. After taking the post-test from both groups, the researcher scored both groups' argumentative writing by the principles of CCTST (appendix C). After scoring the EFL learners' argumentative writing, in order to measure EFL learners' critical thinking skill development, the researcher gave the CCTST (form B). After finishing this post-test in both groups, and scoring their argumentative writing, the researcher was ready to present the first research questions' data.

In the control group of the study, the researcher asked the teachers to follow their normal routine of the teaching, so they followed their normal lesson plan based on the curriculum.

Question number two in some ways were similar to question number one of the study, but they had an important difference, in question number one the researcher focused his attention and data collection procedure on the experimental group without considering the control group and its conventional context of teaching since in experimental group the teaching context was a synthesize of critical thinking dispositional features and action learning but in question number two the focus of the



researcher was on conventional teaching strategies and its effect on EFL learners' argumentative writing development in comparison with the effect of having a critical thinking dispositional features..

Just like question number one, as mentioned earlier the researcher himself presented the material to the experimental groups, so in doing so he tried to play a cautious role in controlling extraneous variables like sources of contamination, contaminative variables, and extraneous variables, grouping issues, people issues, measuring issues, environmental issues. At the beginning of the study, the researcher told the EFL learners of the study,  $n=150$ , control group= $73$ , experimental group= $77$  to write an argumentative composition about the same topic of question number one *"Many people welcome the opening of shopping areas near their homes. On the other hand, some people were strongly opposed to the construction of such facilities. If the opening of a large shopping center in your neighborhood were announced, would you support or oppose its construction? Use specific reasons and details to support your answer"*. as a pre-test, and reminded them, that it should not be more than 300 words, and again the CCTST (form A) was given to these EFL learners to complete. It should be mentioned that selecting this topic had the main important reasons to create a challenging context for brainstorming their ideas and later analyzing the effectiveness of using critical thinking dispositional features and action learning approach on argumentative writing improvement of EFL learners.

After taking the pre-test from the EFL learners, the researcher who was the teacher of the experimental group  $n=77$  and also who was teaching in the conventional context  $n=73$  who studying in six EFL classes scored their argumentative writing by the CCTST principles. Having done the first step, which was taking a pre-test in the control group and experimental group who were going to be taught in a conventional teaching approach, and scoring their argumentative writing, the treatment phase for this research question was started.

In the treatment phase for research question number two, just like the question number one, the main source which was taught to the control groups was "Bailey, Edward P. and Philip A. Powell; The Practical Writer with Readings", the teacher who taught it based on the conventional method of teaching, which was hold 2 hours a week, and following the prescribed lesson plan. In doing so the teacher (researcher himself) who employed the conventional teaching approach, who just followed the formal routines of teaching, who came to the class and taught the book based the prescribed lesson plan of the book. One point should be mentioned; the teacher pinpointed in his mind that he should be cautious to follow the conventional routine of the teaching.

The "The Practical Writer with Readings" which was the main source of the teaching and data collection for this study, has four sections, as the dominant fashion of conventional teaching strategies, the researcher who acted as the teacher taught all these four sections himself as the omniscient and the EFL learners played as the role of passive learners who come to the class to learn the taught material and memorize it and deliver their learning in the next session.

The first chapter of the book starts with "The One-Paragraph Essay (Stage I)". As the researcher mentioned earlier this chapter of the book acted as the warm-up for the experimental group, but in a conventional teaching approach all the chapters were taught in a same manner. The one-paragraph essay was an essay in miniature, so based on the conventional teaching approach before starting the session he had selected the topic in advanced then he devoted the whole 90 minutes of the class to teaching the material based on that topic as the example for the EFL learners, in doing so, first he clarified the pre-determined topic for the EFL learners. Then after a brief introduction in a conventional manner then starting to teach the content material. After finishing the lesson, the teacher asked the students to write an article as a homework for the next session of the class.

After the treatment phase was finished which was lasted until the end of the educational term (16 sessions), again the researcher or namely the teacher asked EFL learners to write an argumentative essay about the topic *"We all have favorite activities that we enjoy. Write an essay convincing reader to try the activity that you enjoy most"*, as a post-test as a post-test, and again asked them it should not be more than 300 words. As mentioned earlier choosing this topic had two main important reasons; one identifying male and female EFL learners' attitude toward this topic at the beginning of the study which was investigated in the further sections of the study, and the second reason was to creating a challenging context for brainstorming their ideas and later analyzing the effectiveness of using critical thinking dispositional features and action learning approach on enhancing argumentative writing. After taking the post-test from the EFL learners, the researcher scored their argumentative writing by the Holistic Critical Thinking Scoring Rubric – HCTSR, then the researcher scored the EFL learners argumentative writing, in order to measure EFL learners' critical thinking skill development, the researcher gave the CCTST (form A). After finishing this post-test in both groups, and scoring their argumentative writing, the researcher was ready to present the second research question data.

## 5. Data analysis procedure

As mentioned earlier this study investigated two questions, in this section analysis procedure of the collected data for research questions was presented as follows:

As stated in the data collection procedure, for research question number one, the researcher had to employ one research instrument for the data collection procedure; first, he gave the EFL learners an argumentative writing topic, then evaluate it by the California Critical Thinking Skills Test (CCTST) principles, by using this principles he wanted to know that whether synthesizing critical thinking dispositional features and action learning could improve Iranian EFL learners argumentative writing or not, since he CCTST was intended to measure test takers' ability to display the critical thinking abilities necessary for success in educational or professional contexts.

In question number one first the researcher studied the effect of two independent variables namely; critical thinking dispositional features and action learning approach on argumentative writing development, in doing so he used the t-test which was a statistical test that was used to compare the mean scores of two groups. It was frequently used in theory testing to ascertain if a procedure or treatment had an impact on the community of interest or whether two groups are distinct.

For the purposes of analyzing the CCTST-related data, it should be noted that CCTST total scores ranging from 0 to 7 do not provide evidence of critical thinking. Scores between 8 and 12 are deemed Weak; scores between 13 and 18 are considered Moderate; while scores between 19 and 24 are considered Strong. Superiority is defined as a score of 25 or above, and the researcher interprets the obtained data based on these numerical values.

As mentioned earlier research question number two in some ways were similar to question number one of the study, but they have an important difference, in question number one the researcher focused his attention and data collection procedure on the experimental group without considering the control group and its conventional context of teaching, since in experimental group the teaching context was a synthesize of critical thinking dispositional features and action learning but in question number two the focus of the researcher was on conventional teaching strategies and its effect on EFL learners' argumentative writing development.

Again, for analysis of the related data the researcher used t-test to compare the two contexts of learning namely; conventional and researcher-based lesson plan.

## 6. Results

### 6.1. Checking the assumption of normality

The expectations supporting such tests (such as the normality assumption) required to be verified before performing parametric tests like the t test, ANCOVA, and two-way ANCOVA. As a consequence, Table 2 below provides the Kolmogorov-Smirnov test outcomes for each test employed in this study:

The researcher examined the  $p$  values under the Sig. column of the Kolmogorov-Smirnov test (and/or the Shapiro-Wilk's test) to see if the normality assumption is met for the writing pretests and posttests of the male and female L2 learners in the EG and CG, as well as for the CT disposition scores of the male and female learners in the experimental group. Because a  $p$  value larger than the significance level of .05 indicates no violation of the assumption of normality, it could be concluded that the distributions for all the pretests and posttests used in this study enjoyed normality. In addition to the assumption of normality, the assumptions of linearity, homogeneity of the regression slopes, and homogeneity of variances were checked for the ANCOVA test run in the current study, and no violations of these assumptions were assured as well. All the other assumptions of  $t$  test and two-way ANOVA had also been met.

### 6.2. Results of pre-test and post-test

In order to test the first hypothesis of the study, the argumentative writing pretest and posttest scores of the EFL students in the experimental groups are summarized in table 2:

**Table 2.** Results of descriptive statistics comparing the writing pretest and post-test scores of the EGS and CGS

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EG1 Pretest	14.1923	26	1.67527	.32855
	EG1 Posttest	18.3077	26	1.28707	.25241
Pair 2	EG2 Pretest	13.3077	26	1.87924	.36855
	EG2 Posttest	17.8462	26	1.48168	.29058
Pair 3	EG3 Pretest	14.0700	25	1.76115	.35223
	EG3 Posttest	17.6500	25	1.30304	.26061
Pair 4	Cont G Pretest	13.2534	73	1.69686	.19860

	Cont G Posttest	14.0788	73	1.64247	.19224
Pair 5	EGs combination Pretest	13.8539	77	1.79471	.20453
	EGs combination Posttest	17.9383	77	1.37120	.15626

As table 2 shows, a statistically significant difference was found between the mean scores of pre and post-tests of each group whether experimental or control. In order to determine whether the difference between the mean scores of the pre- and post-tests of each group was statistically significant or not, the researcher ran five paired-samples t tests. Table 3 summarizes the results:

**Table 3.** Results of paired-samples t test comparing the writing pretest and posttest scores of the EGs and CGs.

		Paired Samples Test							Sig. (2-tailed)
		Paired Differences					t	df	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	EG1 Pretest - EG1 Posttest	-4.11538	1.89899	.37242	-4.88240	-3.34837	-11.050	25	.000
Pair 2	EG2 Pretest - EG2 Posttest	-4.53846	1.48441	.29112	-5.13803	-3.93890	-15.590	25	.000
Pair 3	EG3 Pretest - EG3 Posttest	-3.58000	1.33213	.26643	-4.12988	-3.03012	-13.437	24	.000
Pair 4	Cont G Pretest - Cont G Posttest	-.82534	.55853	.06537	-.95566	-.69503	-12.626	72	.000
Pair 5	EGs combination Pretest - EGs combination Posttest	-4.08442	1.62049	.18467	-4.45222	-3.71661	-22.117	76	.000

The significant data presented in Table 3 is the P value of the Sig. (2-tailed) column. The p value had to be examined with the significance level (i.e., .05) to determine whether the regarded dissimilarity of the pretest and posttest results had been numerically important or not. A p value lower than .05 represents a statistically important variation between the two stated measured scores, while a p value above the .05 implies no numerical important deviation. Because the p value beneath the Sig. (2-tailed) row in Table 4.3 was smaller than the significance level, it could be concluded that the variation between the writing pretest and posttest of each EGs and CGs was of statistical significance.

### 6.3. Argumentative writing development: EGS vs. CGS

Two-way ANCOVA, a statistical test that could account for potential pre-existing differences between the two groups and compare their posttest scores appropriately, was used to test the second hypothesis of the study and determine whether there is a significant difference between the writing posttest scores of the students in the EGs and CGs. The outcomes of the descriptive statistics used in this ANCOVA analysis are displayed in Table.4:

**Table 4.** Descriptive statistics for writing posttest scores of the EGs and CGs

Descriptive Statistics				
Dependent Variable: Posttest				
Group	Gender	Mean	Std. Deviation	N
Exp G1	Male	17.9167	1.39194	9
	Female	18.5147	1.21986	17
	Total	18.3077	1.28707	26
Exp G 2	Male	17.4167	1.43069	9
	Female	18.0735	1.49939	17
	Total	17.8462	1.48168	26
Exp G3	Male	17.2778	1.18219	9
	Female	17.8594	1.35698	16
	Total	17.6500	1.30304	25
cont G	Male	14.3919	1.66515	37
	Female	13.7569	1.57717	36
	Total	14.0788	1.64247	73
Total	Male	15.7187	2.17968	64
	Female	16.3140	2.61899	86
	Total	16.0600	2.45132	150

The writing posttest mean score of the EGs, Critical thinking group ( $M=18.30$ ), action learning group ( $M=17.84$ ), and synthesizing critical thinking and action learning group ( $M=17.65$ ) was found to be greater than the writing posttest mean score of the CG learners ( $M=16.06$ ).

To find out which of these EGs significantly outperformed the other groups in terms of their writing posttest, a two-way ANCOVA was run. The results are illustrated in Table 5 to be consulted:

**Table 5.** Two-way ANCOVA for the writing post-test scores of the EGs and CGs

Tests of Between-Subjects Effects						
Dependent Variable: Posttest						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	781.152 <sup>a</sup>	12	65.096	78.104	.000	.872
Intercept	171.780	1	171.780	206.107	.000	.601
Group	70.658	3	23.553	28.259	.000	.382
Gender	.299	1	.299	.358	.551	.003
Pretest	68.145	1	68.145	81.763	.000	.374
Group * Pretest	36.275	3	12.092	14.508	.000	.241
Gender * Pretest	.543	1	.543	.651	.421	.005
Group * Gender * Pretest	.712	3	.237	.285	.836	.006
Error	114.183	137	.833			
Total	39583.875	150				
Corrected Total	895.335	149				

a. R Squared = .872 (Adjusted R Squared = .861)

In Table 5, to find the relevant p-value, if you look at the row labeled Groups in the leftmost column, and read across this row, under the Sig. column, you can see the p-value, which should be compared with the alpha level of significance (i.e., .05). This p-value turned out to be smaller than the alpha level of significance ( $.000 < .05$ ), which indicates that the difference between the learners in EGs ( $M = 17.93$ ) and CGs ( $M = 16.01$ ) on the writing post-test reached statistical significance. Differently put, teaching synthesizing critical thinking dispositional features and action learning approach was found to be significantly more effective than the conventional approach so far as the L2 writing of Iranian EFL learners was concerned.

## 7. Discussion

Because hypotheses one and two focused on the effects of synthesizing critical thinking dispositional features and action learning approach on the development of EFL learners' argumentative writing skills, both are considered together in this section. To test these two hypotheses, a paired-sample t-test was performed on the argumentative writing pretest and posttest scores of the learners in the experimental group. The statistical analysis of the results revealed that their improvement was significant, indicating that synthesizing critical thinking disposition and action learning approach had a positive influence on enhancing Iranian EFL learners' argumentative writing. In addition, one-way ANCOVA was conducted to determine if there was an important disparity between the writing post-test scores of the learners in the EG and CG. The result pointed to the fact that synthesizing critical thinking disposition and action learning approach was found to be significantly efficient than the conventional approach as far as the L2 writing of Iranian EFL learners was under research. Therefore, the first two null hypotheses were safely rejected.

Argumentative writing is believed to be a higher form of analytical thinking in addition to a problem-solving practice where a mixture of different but related skills gathered via practicing action learning and cooperative learning. Writing proficiently necessitates gaining higher order level of thinking and reasoning skills. Freely and Steinberg (2000) underlined the importance of conversations, arguments, and problem-solving exercises in the form of action learning for enhancing critical thinking among students. Through the use of action learning approaches and critical thinking dispositional features as independent variables in this study, EFL learners were able to bring together diverse writing strategies and materials within the same contexts in order to work through challenges, opinion sharing, and question viewpoints in a psychologically safe, cooperative context, and thus develop a critical thinking-based model as the dependent variable, the results of which could be derived from the action learning procedures (Hashemi et al., 2010).

Improving learners' critical thinking skills is one of the important techniques for enhancing L2 learners' writing abilities. (Mohammadzadeh Mohammadabadi et al., 2013). Writing can undoubtedly be regarded 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 (Sieglóvá, 2017). These characteristics when combined with action learning approaches lead to the improvement of argumentative writing.

Ruebling (2007) argued that action learning helps learners learn how to learn, which involves coping with real-world challenges in the specific context. Strength of action learning was related to the team-work phase: stating and addressing their viewpoints toward the process, and learning to manage criticism: Being on an equal level and recognized for their efforts, as well as getting feedback and reflecting ideas off each other, all contribute to expanding learning and facilitating growth particularly in relation to argumentative writing improvement. According to Revans (1982, pp.626-7), action learning is a sophisticated intellectual, emotional, or physical process that demands its students accomplish planned change in their observable behavior in the issue field through responsible engagement in a genuine, difficult, and stressful situation which are the features of argumentative writing.

The findings 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.

## 8. Conclusion and implications

The current research was conducted with the aim of investigating the impact of synthesizing critical thinking dispositional features and action learning on Iranian EFL learners' argumentative writing. 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

Argumentative writing requires criticality; it's not enough to just describe or summarize the evidence, the writer also needs to analyze and evaluate information and use it to build his own arguments. This is where he shows his own thoughts based on the evidence available, so critical writing is really important for higher grades. Synthesis of critical thinking dispositional features and action learning motivates eagerness, develop inspiration, boosts problem-solving competency, fosters independence, and is considered a life-long skill, not just learning.

It is hoped that the findings of this study deliver beneficial consequences for EFL instructors, learners, materials developers, and syllabus designers. Critical thinking is a combination of abilities and dispositions that, when used properly, enhances the possibility of developing a reasonable response to a quandary or a good result to an issue (Dwyer et al., 2015). Suppose learners master the principles of critical thinking. In that case, they will apply careful intuition, test the impossible, seek hardship, build substitutes, use an approach, see Consider other points of view and try to be equitable.

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## 11. Data availability

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

## 12. Ethics declarations

## 12.1. Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## 12.2. Informed consent

The written consent letters were obtained from all individual participants included in the study.

## 12.3. Conflict of interest

The present study was part of the doctoral dissertation of the second author. On behalf of all authors, the corresponding author states that there is no conflict of interest.

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