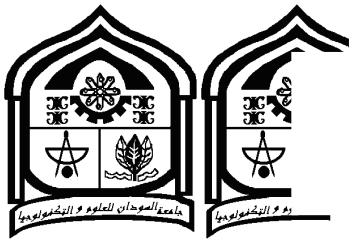

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Scienc nology

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Education Department

Argumentative Essay in Developing Critical Thinking

المقال الجدلى لتطوير التفكير الناقد

A Case Study: Third Year University Students, Education College, Sudan University of Science and Technology

A Dissertation Submitted for the Fulfillment of the Requirements for the Degree of Doctorate of Philosophy in Applied Linguistics

By:

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2016

Dedication

To My beloved

Parents

My Brothers And

Sisters

To All Family And

Friends

Acknowledgements

My deep and profound thanks and gratefulness are due to ALLAH the Almighty who bestowed me with patience, perseverance and the means to make this study. Thanks go to Him for all his endless blessings and favours. Innumerable people have helped me directly or indirectly, without their support, this study could have never come to the light. First of all, my eternal gratitude and sincerest appreciation are due to Dr. Ishraga Bashir Mohammed Elhassan - the main supervisor - for her invaluable guidance, great support and encouragement. Dr Ishraga through out this study provided extraordinary understanding, endless continues help and guidance morally and academically and her insightful comments and patience which she revealed in dealing with the many difficult parts throughout the stages of this study.

I am enourmously indebted to Dr. Nada Sid Ahmed Eljack - the co-supervisor - for her insightful comments, tremendous encouragement and continuous support and advice throughout the stages of doing this research. I would like to express my sincere gratitude to Dr. Tag Elsir Bashoum a distinguished and knowledgeable scholar in the field of languge teaching for piloting, also my thanks are due to Dr. Hassan Mahil , Mr. Muntasir Hassan and Dr. Inas Mohammed Abdelrahman from the Department of English Language Language – Sudan University of Science and Technology for their insightful comments, unfailing guidance, and valuable suggestions and advice.

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Definition of Terms:

- **Critical Thinking:**

A mental process of analyzing or evaluating information, particularly
statements or propositions that are offered as true Critical thinking can be described as a gradual progression from the superficial to the increasingly complex (Mendelman, 2007, p. 300).

- **High-Stakes Testing:**

Any test for which the results have serious consequences for the test taker and teacher. An example of high-stakes testing would be the Wisconsin Knowledge and Concepts Exam (WKCE); in some Wisconsin school districts, test results are being used to evaluate teacher performance.

- **Metacognition:**

The mental process of thinking about one‘s own thinking; the ability to assess and evaluate one‘s thinking. Developmentally, metacognition typically begins with the onset of adolescence.

- **Argumentative Essay:**

An essay that involves building a case for an idea or thesis statement. This entails giving reasons for your thesis statement and providing evidence to back it up.

Sound Argument:

An argument where the conclusion absolutely follows from premises. For example all cats are carnivores; tigers are cats therefore tigers are carnivores.

Strong Argument:

A n argument where the conclusion does not necessarily follow from premises, but if the premises are strongly enough the conclusion is likely to be true. For example Tigers sometimes eat people; therefore this tiger is likely to eat us.

Valid Argument:

An argument where the conclusion absolutely absolutely follows from the premises but the premises may not be true. For example all birds can fly; penguins are birds; therefore penguins can fly.

Weak Argument:

An argument which is not valid, strong or sound because the premises are wrong and –or the conclusion doesn't follow from the premises.

Brainstorming:

The act of writing down all thought and ideas you have about a topic without stopping to monitor, edit or organize them. Brainstorming is a creative process that can be done alone or in group.

Abstract

The purpose of this study is to investigate the role of argumentative essay in developing English as a foreign

language Students' critical thinking skills. The researcher used the descriptive analytical method. The data of the study was collected by the use of questionnaire addresses fifty university teachers who represented sample of the study both males and females and test distributed to 40 students representing both controlled and experimental groups.

The data obtained was analyzed by using (SPSS). The main finding of the research: Firstly; Most of the teachers' encourage knowing purpose can enhance EFL learners critical thinking skills through argumentative essay writing. Secondly; An extremely large percentage of teachers recommended that analyzing information, facts and observation can enhance EFL Learners critical thinking skills through argumentative essay writing. Thirdly; A majority of university teachers encouraged that predicting the conclusion before writing can enrich EFL Learners critical thinking skills through argumentative essay writing.

ملخص البحث

يهدف هذا البحث الى دراسة الى تقصى دور كتابة المقال الجدلى فى تنمية مهارات التفكير الناقد لدى الطلاب الذين تعتبر لهم اللغة الانجليزية كلغة اجنبية . أستخدم الباحث منهج البحث الوصفى التحليلى. تم جمع المعلومات البحث عن طريق استبيان والذى صمم لجمع المعلومات من مدرسى اللغة الانجليزية بالجامعات وهم خمسون يمثلون عينة الدراسة وتشمل الجنسين الذكور والاناث. أستخدم الباحث برنامج الحزمه الاحصائيه للعلوم الاجتماعية لتحليل بيانات هذا البحث والمعروف اختصارا SPSS

تشير اهم النتائج الى ان : اولا: معظم مدرسى الجامعات المشاركين فى الاستبيان يتفقون على ان معرفة العرض يمكن ان تطورمهارات التفكير الناقد عن طريق كتابة المقال الجدلى لدى الطلاب الذين تعتبر لهم اللغه الانجليزية كلغة اجنبية. ثانيا: معظم من مدرسي الجامعات يوصون بأن تحليل المعلومات والحقائق والملاحظات بأمكانها ان تحسن من مهارات التفكير الناقد عن طريق كتابة المقال الجدلى لدى طلابهم الذين تعتبر لهم الانجليزية لغه اجنبية. ثالثا: معظم أساتذة الجامعات يشجعون على أن توقع النتائج قبل البدء فى الكتابة يمكن ان تثرى مهارات التفكير الناقد عن طريق كتابة المقال الجدلى لدى الطلاب الذين تعتبر لهم اللغة الانجليزية كلغة اجنبية.

Chapter One

The General Framework of the Study

1-0 Overview

When developing the materials that we teach, most of us are concerned with designing materials that will sharpen our students thinking skills. Rather, we accomplish this aim by providing our students with interesting reading materials, lectures and class discussions, as students read more and hear more we justify that they will gain knowledge and discover new contexts for their ideas as well as thinking critically. However reading assignments and lectures do not ensure that our students will improve their critical thinking. Many students read and listen passively, simply absorbing information that do not reliably challenge their thinking of what they are reading or listening to. However when students write, they must be active learners even if it is simple writing task, such as a summary of an article and essay requires that students should make important critical choice as such: what is the most important information to this argument? What might be left out? More complex writing assignments ask students to make more difficult choices about their topic etc. Skill of writing converts students from passive to active learners as well as requires them to identify issues, formulate hypotheses and involve them in real arguments. Writing action requires students to focus and clarify their thought before putting them down on papers, hence taking them through critical thinking process. Writing requires that students make important critical choices and ask themselves

(GoCsik, 2002), what is the most important information? Why I think about this subject? How did I arrive to what I think about, what are my assumptions? Are they valid? How can they work with fact? Observations…? Etc in order to convince others of what we think unconvincing. No doubt when we think critically we are going to widen our scope when we perceive things, so having critical thinking and teach to our student will change their life rapidly to be better not just academically. There is evidence to suggest that the teaching approach used to help students develop critical thinking skills can improve students' We have to think more clearly to improve our writing by thinking and understanding critically. Writing essays that allow us to be developed. According to the organization of thought one of the easiest critical thinking skills is to recognize things you perceived and also one of the most important when you write try to organize your thought if you intend for your piece to be coherent. Writing initiates critical thinking more than speaking or reading. Writing is a responsive, a reaction to thought and feeling about particular subject; writing has a linear and logical flow that makes self -correction of critical thinking more natural step in the process. The ability to think critically enable us to create deeper interpretations of text which allow us to better understanding the nuances of a text we are reading. Drawing connection between text and ideas that we have read about is one of the first steps in critical thinking and will dramatically improve the learners writing.

Learners’ have many occasions at university to write, almost every class requires some written work; though some tasks may seem so routine learners’ do not even think of them as a writing task. Yet even the most routine forms of writing can fix ideas in learners’ minds, but it will be better if it accompanied by critical thinking which will help them not to write everything they may face blindly. Critical thinking has been variably defined over the past 80 years. Listed below are several definitions of critical thinking in the literature: “Active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends” (Dewey, 1933, p. 118).

“That mode of thinking – about any subject, content, or problem, - in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it” (Paul & Elder, 2006, p. 2). “Purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual methodological, criteriological, or contextual consideration upon which that judgment is based” (Facione, 1990, p. 21). But the fact that people frequently have to communicate with each other. In writing is not the only reason to include writing as a part of our second language syllabus, there are additional reasons such as: writing helps our students to learn far better than just reading and listening. This can be seen as such: first, writing reinforces the grammatical

structure which is considered as one of the main roles of linguistics proficiency. Therefore, when students come to analyze their written essays (one of critical thinking skills) they will be accurate in writing their tasks in proper way. Second, when our students write, they also have a chance to be adventurous with the language in terms of going beyond what they have been learned. Third, when they write, they necessarily involve themselves with the new language in terms of exerting efforts to express ideas and the consonant use of eye, hand and brain is a unique way to reinforce learning and directly reinforce students' critical thinking. Critical thinking clarifies goals, examines assumptions, discerns hidden values, evaluates evidence, accomplishes actions, and assesses conclusions.

"Critical" as used in the expression "critical thinking" connotes the importance or centrality of thinking to an issue, question or problem of concern. "Critical" in this context does not mean "disapproval" or "negative." There are many positive and useful uses of critical thinking, for example formulating a workable solution to a complex personal problem, deliberating as a group about what course of action to take, or analyzing the assumptions and the quality of the methods used in scientifically arriving at a reasonable level of confidence about a given hypothesis. Using strong critical thinking may evaluate an argument, for example, as worthy of acceptance because it is valid and based on true premises. Upon reflection, a speaker may be evaluated as a credible source of knowledge on a

given topic. Critical thinking can occur whenever one judges, decides, or solves a problem; in general, whenever one must figure out what to believe or what to do, and do so in a reasonable and reflective way. Reading, writing, speaking, and listening can all be done critically or uncritically. Critical thinking is crucial to become a close reader and a substantive writer. Expressed in most general terms, critical thinking is "a way of taking up the problems of life.”

Finally, the list of core critical thinking skills includes observation, interpretation, analysis, inference, evaluation, explanation, and meta-cognition. Critical thinking skills will definitely develop through essay writing.

1-1 Statement of the study:

Critical thinking is one of the cornerstones of language learning, but here in Sudan it was to some extent ignored so in this study, the researcher tries to find out how to promote critical thinking skills through argumentative essay writing. Often the struggle of writing linked as it is to the struggle of thinking and to the growth of person’s intellectual vacuum and therefore, leads to awake students to the real nature of learning. In this study the researcher tried to connect how can argumentative essay develop critical thinking.

The combination of a new generation of computers-literate undergraduate and the vast amount information available which will many written work will gradually promote undergraduate students critical thinking skills.

Appealing and encouraging though the definitions seem in terms of the features they represent, the abilities included in these definitions do not lend themselves easily to handy gadgets to be utilized by individuals. In this regard, Paul and Elder (2006) claim that the development of critical thinking does not happen overnight. It is rather a long-term process taking up years to develop. Unless learners trained through argumentative essay they cannot sharpen their critical thinking. They mention six stages through which critical thinking develop. These stages are as follows:

_ **Stage 1**: The Unreflective Thinker (we are not aware of significant problems in our thinking)

_ **Stage 2**: The Challenged Thinker (we become aware of the problems in our thinking)

_ **Stage 3**: The Beginning Thinker (we try to improve but without regular practice)

_ **Stage 4**: The Practicing Thinker (we recognize the necessity of regular practice)

_ **Stage 5**: The Advanced Thinker (we advance in accordance with our practice)

_ **Stage 6**: The Master Thinker (skilled and insightful thinking become second nature to us

1-2 Objectives of the study:

This study aims to find out the following:

1. To develop our students' mental abilities to write with critical thinking

2- To suggest how can we promote critical thinking skills through writing.

3-Highlight the role of writing to improve students’ critical thinking

4-To discover third year students’ potentialities through writing essays

1-3 Significance of the study:

This study will:

1-Contribute to the field of applied linguistics

2-Help to improve EFL learners critical thinking skills through argumentative essay writing.

3-Try to find out some solutions for promoting EFL learners through strategies of argumentative essay

1-4 Questions of the study:

1-To what extent can argumentative essay writing enrich EFL Students' elements of critical thinking skills?

2-Which argumentative essay writing strategies can help EFL Students' develop critical thinking skills?

1-5 Hypotheses of the study:

1-Argumentative essay can develop EFL Students’ critical thinking.

2-There are many strategies that can help EFL Learners develop EFL Students' critical thinking.

1-6 Methodology of the study:

The researcher uses the quantitative method of research. The data will be collected by means of a questionnaire for teachers' and test for students'.

1-7 Delimitation of the study:

The study will be limited to the “investigating the role of argumentative essay writing in developing English as a foreign language learners' critical thinking skills” at faculty of Education –Sudan University of Science and Technology, Third Year (2014-2015).

1.8 Summary

This introductory chapter was concerned with presentation of the statement of the problem, objectives of the study, questions of the study, hypotheses of the study, significance of the study, limits of the study, definitions of terms and outline of the research.

Chapter Two

Theoretical Framework and Literature Review

Chapter Two

Theoretical framework and literature review

2.0 Introduction

This chapter starts with the theoretical framework of the study like definition of critical thinking, approaches of critical thinking, strategies of developing critical thinking through argumentative essay, elements of thoughts, critical thinking standards**,** the importance of critical thinking and writing, essential intellectual traits.

2.1 The Theoretical Framework of the Research:

The main objective of this study is to enhance critical thinking of EFL learners through argumentative essay. This relation between developing critical thinking and writing argumentative essay will lead to enhance EFL learners' general understanding. The researcher's main concern of this study is to shed a light on that writing argumentative essay makes EFL learners no longer passive in their learning language first then they will develop critical thinking as well. Glaser (1941) as cited in McGregor (2007) expands this early idea of critical thinking to include the knowledge of the methods of logical inquiry and reasoning. Fisher (1990) recognizes the important universal nature of critical thinking and introduces it as the cornerstone of any academic maneuver at learning a language such as writing. A very important part of formal education recently is essays. EFL learners' are taught structured essay formats to improve their writing skills. Essays generally used to judge the mastery and

comprehension of material in any stage of their academic life. Education process should support the enhancement of independent thinkers who are discerning problem solvers, and can use a range of cognitive skills and strategies, including critical thinking and problem solving (McGregor, 2007).

The topic of Critical thinking is vital in modern education. All educators are interested in teaching critical thinking to their students. Many academic departments hope that its professors and instructors will become informed about the strategy of teaching critical thinking skills, identify areas in one's courses as the proper place to emphasize and teach critical thinking, and develop and use some problems in exams that test students' critical thinking. A rationale for critical thinking is explained by William T. Daly (1990) in a short article, "Developing Critical Thinking Skills." He says that" the critical thinking movement in the U.S. has been bolstered and sustained by the business community's need to compete in a global economy. The general skill levels needed in the work force are going up while the skill levels of potential employees are going down. As a result, this particular educational reform movement will remain crucial to the education of the work force and the economy's performance in the global arena. This economic pressure to teach critical thinking skills will fall on educational institutions because these skills, for the most part, are rarely taught or reinforced outside formal educational institutions.

Unfortunately, at the moment, they are also rarely taught inside educational institutions.".But here in Sudan it was totally ignored so this study will try to develop EFL learners' critical thinking through argumentative essay.

The writings on critical thinking have roots in two primary academic disciplines: philosophy and psychology (Lewis & Smith, 1993). Sternberg (1986) has also noted a third critical thinking strand within the field of education. These separate academic strands have developed different approaches to defining critical thinking that reflect their respective concerns. Each of these approaches is explored more fully below.

2.1.1The philosophical approach.

Socrates, Plato, Aristotle, and more recently, Matthew Lipman and Richard Paul writings, exemplify the philosophical approach. This approach focuses on the hypothetical critical thinker, enumerating the qualities and characteristics of this person rather than the behaviors or actions the critical thinker can perform (Lewis & Smith, 1993; Thayer-Bacon, 2000). Sternberg (1986) has noted that this school of thought approaches the critical thinker as an ideal type, focusing on what people are capable of doing under the best of circumstances. Accordingly, Richard Paul (1992) discusses critical thinking in the context of "perfections of thought" (p. 9). This preoccupation with the ideal critical thinker is evident in the American Philosophical Association's consensus

portrait of the ideal critical thinker as someone who is inquisitive in nature, open-minded, flexible, fair-minded, has a desire to be well-informed, understands diverse viewpoints, and is willing to both suspend judgment and to consider other perspectives (Facione, 1990).

Those working within the philosophical tradition also emphasize qualities or standards of thought. For example, Bailin (2002) defines critical thinking as thinking of a particular quality—essentially good thinking that meets specified criteria or standards of adequacy and accuracy. Further, the philosophical approach has traditionally focused on the application of formal rules of logic (Lewis & Smith, 1993; Sternberg, 1986). One limitation of this approach to defining critical thinking is that it does not always correspond to reality (Sternberg, 1986). By emphasizing the ideal critical thinker and what people have the capacity to do, this approach may have less to contribute to discussions about how people actually think.

Definitions of critical thinking emerging from the philosophical tradition include “the propensity and skill to engage in an activity with reflective skepticism” (McPeck, 1981, p. 8); “reflective and reasonable thinking that is focused on deciding what to believe or do” (Ennis, 1985, p. 45); “skillful, responsible thinking that facilitates good judgment because it 1) relies upon criteria, 2) is self-correcting, and 3) is sensitive to context” (Lipman, 1988, p. 39); purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as

well as explanation of the evidential, conceptual, methodological, criteriological, or conceptual considerations upon which that judgment is based" (Facione, 1990, p. 3); "disciplined, self-directed thinking that exemplifies the perfections of thinking appropriate to a particular mode or domain of thought" (Paul, 1992, p. 9); Thinking that is goal-directed and purposive, "thinking aimed at forming a judgment," where the thinking itself meets standards of adequacy and accuracy (Bailin et al., 1999b, p. 287); and "judging in a reflective way what to do or what to believe" (Facione, 2000, p. 61).

2.1.2The cognitive psychological approach

This approach contrasts with the philosophical perspective in two ways. First, cognitive psychologists, particularly those immersed in the behaviorist tradition and the experimental research paradigm, tend to focus on how people actually think versus how they could or should think under ideal conditions (Sternberg, 1986). Second, rather than defining critical thinking by pointing to characteristics of the ideal critical thinker or enumerating criteria or standards of "good" thought, those working in cognitive psychology tend to define critical thinking by the types of actions or behaviors critical thinkers can do. Typically, this approach to defining critical thinking includes a list of skills like analysis and synthesis or procedures performed by critical thinkers (Lewis & Smith, 1993). Philosophers have often criticized this latter aspect of the cognitive psychological approach as being a

complex orchestration of knowledge and skills into a collection of disconnected steps or procedures (Sternberg, 1986). For example, Bailin (2002) argues that it is a fundamental misconception to view critical thinking as a series of discrete steps or skills, and that this misconception stems from the behaviorist's need to define constructs in ways that are directly observable. According to this argument, because the actual process of thought is unobservable, cognitive psychologists have tended to focus on the products of such thought—behaviors or overt skills (e.g., analysis, interpretation, formulating good questions). Other philosophers have also cautioned against confusing the activity of critical thinking with its component skills (Facione, 1990), arguing that critical thinking is more than simply the sum of its parts (Van Gelder, 2005). Indeed, a few proponents of the philosophical tradition have pointed out that it is possible to simply "go through the motions," or proceed through the "steps" of critical thinking without actually engaging in critical thought (Bailin, 2002) Definitions of critical thinking that have emerged from the cognitive psychological approach include "the mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts" (Sternberg, 1986, p. 3); "the use of those cognitive skills or strategies that increase the probability of a desirable outcome" (Halpern, 1998, p. 450); and "seeing both sides of an issue, being open to new evidence that disconfirms your ideas,

reasoning dispassionately, demanding that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth" (Willingham, 2007, p. 8).

2.1.3The Educational approach.

Lastly, those working in the field of education have also participated in discussions about critical thinking. Benjamin Bloom and his associates are included in this category. Their taxonomy for information processing skills (1956) is one of the most widely cited sources for educational practitioners when it comes to teaching and assessing higher-order thinking skills. Bloom's taxonomy is hierarchical, with "comprehension" at the bottom and "evaluation" at the top. The three highest levels (analysis, synthesis, and evaluation) are frequently said to represent critical thinking (Kennedy et al., 1991). The benefit of the educational approach is that it is based on years of classroom experience and observations of student learning, unlike both the philosophical and the psychological traditions (Sternberg, 1986). However, some have noted that the education approach is limited in its vagueness. Concepts within the taxonomy lack the clarity necessary to guide instruction and assessment in a useful way (Ennis, 1985; Sternberg, 1986). Furthermore, the frameworks developed in education have not been tested as vigorously as those developed within either philosophy or psychology (Sternberg, 1986.

2.2Approaches of teaching critical thinking

This conceptual distinction has resulted in similar controversy over how to best teach critical thinking; is it best taught in courses that focus specifically on it or in discipline-based courses that teach critical thinking within a framework using discipline-specific matter (Bers, 2005; Hatcher, 2006)? Research findings suggest that integrating instruction of critical thinking with instruction in a discipline or with writing leads to greater gains in critical thinking than teaching a stand alone course in critical thinking (Chapman, 2001; Gammill, 2006; Girot, 1995; Hatcher, 2006; Kennison, 2006; Miller, 1992). Recommendations from the AAC&U (2007b) suggest that essential learning, including critical thinking and writing, must be infused throughout undergraduate studies. Indeed, imbedding critical thinking in the major or concentration area brings it full circle to the original aims of requiring that undergraduates declare a major. According to Bok (2006, p. 137) requiring a major for undergraduates allowed the acquiring of a substantial body of knowledge about a particular field, learning special techniques to search for information and analyze it, and using the same methods of inquiry to address complex problems. It is axiomatic that all education systems aspire to prepare learners who consider issues or concepts, academic or general, through lenses different from that of nonprofessionals. Scholars and researchers in the field of education have generally reached the

conclusion that an efficient way to this aim is encouraging education systems to invest in developing and fostering learners' critical thinking skills. Epstein (2006) states that critical thinking involves evaluation, namely to be convinced that some claim is true or some argument is good; as well as, being able to formulate good arguments. Browne and Keeley (2007) believe that critical thinking consists of awareness of a set of interrelated critical questions, plus the ability andwillingness to ask and answer them at appropriate times. Paul and Elder (2008) define critical thinking as the art of analyzing and evaluating thinking with a view to improving it. Halpern (2003) also states that the term critical thinking is used to describe thinking that is purposeful, reasoned and goal directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions. A more significant issue regarding critical thinking is its pivotal role in education. In this regard, Lipman (1988) asserts that the emphasis in education is shifting from the acquisition of facts to the process of thinking. The goal is to have students think for themselves. Critical thinking means correct thinking in the pursuit of relevant and reliable knowledge about the world. Another way to describe it is reasonable, reflective, responsible, and skillful thinking that is focused on deciding what to believe or do. A person who thinks critically can ask appropriate questions, gather relevant information, efficiently and creatively sort through this

information, reason logically from this information, and come to reliable and trustworthy conclusions about the world that enable one to live and act successfully in it. Critical thinking enables an individual to be a responsible citizen who contributes to society, and not be merely a consumer of society's distractions. Children are not born with the power to think critically, nor do they develop this ability naturally beyondsurvival-level thinking. Critical thinking is a learned ability that must be taught. Most individuals never learn it.

Here are some of the characteristics of such a thinker

• uses evidence skillfully and impartially

• organizes thoughts and articulates them concisely and coherently

• distinguishes between logically valid and invalid inferences

• suspends judgment in the absence of sufficient evidence to support a decision

• understands the difference between reasoning and rationalizing

• Attempts to anticipate the probable consequences of alternative actions

• understands the idea of degrees of belief

• sees similarities and analogies that are not superficially apparent

• can learn independently and has an abiding interest in doing so

• applies problem-solving techniques in domains other than those in which learned

• can strip a verbal argument of irrelevancies and phrase it in its essential terms

• Habitually questions one's own views and attempts to understand both the assumptions those arecritical to those views and the implications of the views.

• recognizes the fallibility of one's own opinions, the probability of bias in those opinions, and the danger of weighting evidence according to personal preferences.

Definitions of Critical Thinking

Critical thinking has been a controversial issue among philosophers, researchers and educationalists. Although there is no general consensus on a definition, Hager *et al.* (2003) believe that considerable agreement has been achieved on the fact that it combines two related entities: abilities and dispositions. John Dewey (1933) is thought to have introduced thinking skills into recent educational history. He described “reflective thinking” as consisting of meditating on a subject by giving it serious sustained consideration. Dewey conceptualized thinking skills as the ability to contemplate and reflect on complex issues in order to produce a sound judgment or solution. Similarly, Siegel (1997) defines critical thinking as involving a critical spirit and the critical thinker as a person who is moved by reason, and who takes action after careful and prudent thinking. Stapleton (2001) indicates that Siegel’s definition implies a set of

dispositions, such as attitudes, habits of mind and character traits that inspire a person to scrutinize the evidence available before taking a position. Norris and Ennis (1989) also define critical thinking as reasonable and reflective thinking that is focused upon deciding what to believe and do. According to Norris and Ennis, as Hager *et al.* (2003) put it, to think critically in any discipline means to decide what to believe or do in a reasonable reflective manner and to display critical thinking dispositions and abilities within that discipline.

In order to harmonise these elements of critical thinking, the Foundation for Critical Thinking (2009) website offered a comprehensive definition as "that mode of thinking-about any subject, content, or problem in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem-solving abilities, as well as a commitment to overcome our native egocentrism and sociocentrism."

These definitions suggest that thinking critically involves a set of cognitive skills, such as identifying potentially conflicting issues and gathering, evaluating and pondering over information in order to make a decision. At a personal level, a reflective thinker is a person who is capable of self-criticism and of adjusting

strategies to suit the context and objectives, where any realization of discrepancies between the real and an ideal or desired outcomes constitutes a problem that should be addressed (Peck and Westgate, 1994). At the heart of critical thinking, therefore, as Benesch (1999) claims, is the crucial role of personal identity and ideological convictions. So, if these represent critical thinking in philosophical terms, what definitions do educationists offer?

Educationalists tend to be more explicit in identifying specific critical thinking skills. Linn (2000) defines critical thinking as involving a variety of skills, such as identifying a source of information, analyzing its credibility, reflecting on whether that information is consistent with background knowledge, and drawing conclusions based on critical judgment. Similarly, Watson and Glaster (1980) state that critical thinking entails: (1) an attitude of enquiry that involves an ability to recognize the existence and acceptance of the general need for evidence concerning what is asserted to be true; (2) knowledge of the nature of valid inferences, abstractions and generalizations in which the weight of accuracy of different kinds of evidence are logically determined; and (3) skills in employing and applying the above attitudes and knowledge. Also identifying specific skills, Ennis (1991) lists twelve skills categorized into **four groups of critical thinking abilities**:

(A) Clarification skills

1. identify the focus: the issue, question, or conclusion
2. analyze arguments
3. ask and answer questions of clarification and/or challenge
4. define terms, judge definitions, and deal with equivocation
5. identify unstated assumptions
(B) Basic skills for decision making
6. judge the credibility of a source
7. observe, and judge observations and reports
(C) Inference skills
8. deduce, and judge deductions
9. induce, and judge inductions
a- to generalizations
b- to explanatory conclusions (including hypotheses)
10. make and judge value judgments
(D) Supposition and integration
11. consider and reason from premises, reasons, assumptions, and other propositions with which they disagree or about which they are in doubt, without letting the disagreement or doubt interfere with thinking (suppositional thinking)
12. Integrate the other abilities and dispositions in making and defending a decision. Educationalists clearly tend to be more specific in categorizing thinking skills, allowing teachers to decide when and why to teach and emphasize certain skills. However, two schools of thought have emerged in the education literature regarding the teaching

of critical thinking. The first school was spearheaded by Ennis & Weir (1985), Siegel (1990), Davidson and Dunham (1997) and Davidson (1998). They claim that critical thinking is a definable notion that can be empirically tested and therefore taught in schools. The second school, represented by McPeck (1990) and Atkinson (1997), considers critical thinking to be a more vague concept, which is either subject-specific and without any empirical parameters or an indescribable notion that exists only as a tacit part of social practice. However, despite the lack of consensus, recent research indicates that critical thinking can be tested and measured. Researchers have produced various lists of aspects of critical thinking which represent some degree of universality. Such skills include, seeking reasons, analysing arguments and judging the credibility of a source. These are regarded as invaluable skills for students to master if they want to succeed in their higher education (Davidson, 1998; Benesch, 1999; Stapleton, 2001, 2002; Hager *et al.*, 2003). In this study, persuasive writing is considered to be a manifestation of critical thinking skills, since a writer needs to analyse, evaluate and counter arguments and present a logical text to convince the reader. Therefore, Crammond's (1998) definition is adopted in which he describes persuasive writing as a kind of writing where the writer predicts the audience's needs and interests, and therefore anticipates counterarguments and the questioning of his/her assumptions. However, the question of whether or not

critical thinking can be taught in L2 context and its cultural dimension as advocated by the proponents of the teaching of critical thinking need further investigation.

2.4 Can Critical Thinking be Taught?

Atkinson and Ramanathan (1995) and Atkinson (1997) sparked a huge debate when they warned L2 teachers to exercise caution against adopting critical thinking pedagogy. They argued that critical thinking is a tacit social practice acquired through unconscious processes of socialization during early childhood or, as Atkinson puts it, “learned through the pores” (p. 73). This makes it difficult if not impossible for it to be taught, particularly at post-secondary school levels. To substantiate this claim, Atkinson (1997) argued that attempts made by scholars have failed to reach a unified definition of critical thinking, doing no more than merely reiterating its social aspects rather than describing an explicit notion. Therefore Atkinson concludes that, since what is being described is a social practice, and as some L2 students come from sociocultural backgrounds that encourage cultural conformity, it would be harder or even impossible for them to handle critical thinking courses. Moreover, teaching them critical thinking may expose them to the danger of foreign cultural influences, therefore jeopardizing the harmony of their continuation with their social practices.

The arguments of Atkinson and his associates may be true to a certain extent. As a result of low proficiency in

English, some L2 students tend to regurgitate and copy information in their written assignments. Their critical engagement with texts, whether in reading or writing, is always hampered by their language deficiency. The tightened rules concerning plagiarism in western universities are partly an attempt to encourage students to understand and critically engage with whatever information they read or write. It is also a fact that some non- Western educational systems do not consider critical thinking as an educational goal, and thus encourage rote learning and the memorization of facts as a preferred method of learning. However, Atkinson failed to investigate whether the L2 problem is a cultural, cognitive or linguistic deficiency. Is it justifiable, based on such limited arguments, to categorically advocate that students from such backgrounds lack critical thinking abilities? Is it possible that, in any part of this planet, there are communities who perform their daily activities without applying any kind of rational judgments to their actions? Benesch (1999) points out an apparent contradiction in Atkinson's and his supporters' claims: namely that critical thinking is impossible to teach while at the same time easy to adopt. As she states, on the one hand they worry about L2 students' vulnerability and susceptibility to the influence of critical thinking if they are exposed to it, while on the other hand they claim there is a lack of critical thinking abilities and as a result such students should not be required to engage in any critical thinking activities.

Benesch finds it hard to reconcile these two contradictory positions, especially since teaching itself is always grounded in ideological conviction. Therefore what is perceived as an inability to deal with critical thinking issues could be resistance to the imposition of particular patterns of thought. She suggests that, instead of accusing others of critical thinking deficiencies, opponents of teaching critical thinking should rather ask themselves to what extent their teaching is influenced by their ideological beliefs.

Distinguishing between normal choice and ideological choices, Benesch emphasizes that although other opponents of critical thinking have not stated clearly their political positions, Atkinson has. In his reply to his critics Atkinson (1998) outlined his conviction that making humans aware of how they think could lead to disastrous ends; therefore, normal life can proceed smoothly only if the majority of its mechanisms are hidden. Benesch argues that the choice of such a position prevents students from reflecting on their thinking and behavior and challenging the social status quo of their communities. This political position is rejected by proponents of critical thinking who want students to question, critique and critically evaluate the processes of their own as well as of their communities' daily lives so that their thinking and behavior is well informed. Gieve (1998) praised Atkinson for introducing the issue of cultural relativity into the debate and for acknowledging

that critical thinking should not be considered as a matter of learning skills but involves a comprehensive re-orientation of students' cultural norms, values, beliefs and attitudes. However, disagreeing with Atkinson's interpretation of critical thinking as solely grounded in tacit social processes, he emphasizes the two aspects of critical thinking identified by Blair (1988): intellectual virtue and the virtue of character. The former involves skills and understanding, while the latter involves the habit of critical reflection on one's own and others' problematic assumptions as well as the valuing of reasoned support for beliefs and actions. This resonates with Benesch's rejection of definitions of critical thinking solely as tacit socially inherited norms without regard to an individual's choices or political identity, which always influence decisions. Davidson (1998) similarly argues that critical thinking is a universal phenomenon and should not be reduced to narrow social practice. If some cultures differ in the ability to appropriate critical thinking tools, this may reflect the degree to which critical thinking is tolerated in specific areas of life. He encourages ESL/EFL teachers to teach critical thinking and prepare their students for what he calls the "world outside their societies" (p. 122). There is evidence, he claims, that many students are ready for and in great need of critical thinking skills. In assessing this debate, critical thinking can be defined, as above, to involve sets of cognitive skills such as identifying potentially conflicting issues, and

gathering, evaluating and pondering over information in order to make a decision. These abilities can never be a monopoly of particular communities to the exclusion of others. Even students who come from backgrounds which encourage social harmony tend to apply them in their daily activities. The graduation of thousands of L2 students from such cultural backgrounds from Western universities every year demonstrates that they can manage critical thinking courses if exposed to them. Stapleton (2001) stresses that claiming that L2 students do not possess critical thinking abilities is merely a social prejudice. He cites research on schemata theory suggesting that performance in thinking tasks is related to a learner's familiarity with the topic at hand (Simmons, 1985; Kennedy, Fisher and Ennis, 1991). Stapleton points out that most studies which claim that students from Asian backgrounds lack critical thinking were conducted in America using American topics such as freedom of speech, gun control and the death penalty. These issues, according to him, did not constitute major topics in the students' home countries, whereas his research (Stapleton, 2001; 2002) demonstrated that Japanese students are capable of presenting critical arguments when tested on what they know. Franklin (1985) further concluded that the low performance of L2 students tends to disappear when they become more familiar with the task material, and Stapleton concludes that critical thinking means different

things to different people, and in the academic arena it is greatly influenced by content familiarity.

In conclusion, it is clear that there are different interpretations of what constitutes critical thinking. However, this brief discussion suggests, firstly, that critical thinking is not a wholly tacit social practice but can be taught and improved. Secondly, every human being can be a critical thinker once such a choice is made and ideological convictions cannot be ruled out when discussing what constitutes critical thinking.

2.5 Good Argumentative/Persuasive Writing

McNamara *et al*. (2010) stress that, although a challenge for many, writing well is of great importance for success in a wide variety of institutions and professions. For example, they claim that writing skills are among the best predictors of student success at university, describing good writing as writing that articulates ideas clearly, argues opinions, synthesizes multiple perspectives, presents information effectively and consistently with well-chosen details, and avoids grammatical and mechanical errors. Similarly, Paul and Elder (2006, 2007) describe ‘substantive writing’, as that which has a clearly defined purpose, makes a clear point, and supports it with specific information which is clearly connected and coherent.

What can be gleaned from these definitions is that certain characteristics distinguish good from poor writing.

Among these are clarity of purpose and ideas, the use of supporting arguments and opinions with evidence, and consistency in the presentation of ideas. These elements are usually desired in various forms and genres of writings.

As for argumentative writing, Crowhurst (1988), Brink-Budgen (2005), and Cottrell (2005) stress that its goal is usually to persuade readers to accept certain positions or viewpoints. To be convincing, the desired position needs to be supported with sufficient reasons and evidence, and these authors claim that good persuasive writing contains the following elements:

1. Position: the writer's point of view that he/she wants to persuade the readers to accept should be clearly stated.
2. Reasons: the author provides propositions to support his/her position and why readers should accept them.
3. A line of reasoning: whether or not the reasons given are presented in a logical order. Cottrell (2005) claims that the logical flow of reasons acts as a path that leads towards the desired conclusions. A poor argument is where reasons are not presented in a logical manner or are incompatible with the intended conclusion. The strength of an argument thus lies in the reasons given to support the conclusion.
4. Conclusion: refers to the main purpose of the argument; the position or view the author wants to persuade readers to accept supported by the reasons provided.

Furthermore, although a summary of events can form part of the conclusion, highlighting salient points, it should also provide judgments about the likelihood of these events. These judgments distinguish arguments from other types of writing such as description and narration (Cottrell, 2005).

5. Persuasion: the purpose of an argument is to persuade readers to accept a point of view. Therefore, the conclusion should be drawn from the reasons provided, which should be strong and appealing enough to convince the readers about the strength of the propositions made.

6. Signal words and phrases (clues): these are concerned with the structure and organization of persuasive writing. Good persuasive writing uses transitional words such as ‘so’, ‘thus’, ‘in consequence’ and ‘as a result’ which, if properly used, alert the reader to the intended conclusion. Students also need to acquire the skills to identify and recognize underlying assumptions and conclusions even when such words and phrases are not explicitly used.

Mastering the ability to judge whether or not reasons and conclusions have been provided can be partly achieved through knowledge of the structure and organisation of argumentative/persuasive writing.

McNamara *et al.* (2010) stress that, to become good writers, students need to have a better command of a greater diversity of words and more complex syntactical structures which, as Kellogg (2008) says, takes time through continuous reading, writing and deliberate

practice. Therefore, if the above mentioned elements are characteristics of good writing, how can reading improve writing? Paul and Elder (2006) offer an answer through what they call ‘close reading strategies’

2.5 Models of Good Reading Strategies that Lead to Better Writing:

Paul and Elder (2006) claim that there is a profound relationship between good writing and good reading, where deficiencies in either skill entail parallel deficiencies in the other. A student, for example, who cannot distinguish clear from unclear forms of writing, would have a similar problem in reading, mistaking vague ideas for clear ones. They suggest close reading strategies which, if properly mastered, can enlighten students about the similarities between reading and writing and how cognitive strategies applied in one domain can be employed in the other. These strategies include the following:

1. Clarifying purposes: in any reading task given, learners should be required to identify the author’s purpose(s) and how they can use this strategy in identifying and clarifying their purposes when writing.

2. Formulating clear questions: learners should be encouraged to ask questions while dealing with reading tasks. Asking questions is a better way of unpacking reading content and identifying hidden assumptions. Similarly, learners should be urged and encouraged to ask questions about what they are aiming for when writing.

3. Judging the relevance and irrelevance of information in a text: learners should be encouraged to use their experience and background knowledge to judge and distinguish accurate from inaccurate information in a text both when reading, and when preparing and performing their writing tasks.

4. Drawing logical inferences: in reading tasks learners should be encouraged to draw conclusions based on the reasons given in the text. This is expected to activate their schemata and to bring their background knowledge into play, and they should be urged to do the same when writing.

5. Identifying deep concepts: learners should attempt to identify significant concepts in reading texts, and to similarly identify what guides their thinking while writing.

6. Identifying logical implications: during reading learners should trace the logic of the author's arguments, and then identify such patterns in their own writing.

7. Exploring options: learners should be urged to identify and think within multiple viewpoints, including those present and absent in texts.

Similarly, they should be encouraged to identify multiple viewpoints relevant to issues in their written work, concerning what they should include or exclude. These arguments linking good reading strategies to improve writing echo Byrne's (1988) emphasis that the comprehension of a text depends to a great extent on an appreciation of the devices used by the writer. This

appreciation helps readers to absorb these devices into their mental frames before transforming and transferring them later into their own writing. This is a cognitively complex and intricate process, and how these operations occur is difficult to explain. However, the shared cognitive and other characteristics of the domains of reading and writing may help to explain their relationship.

2.6 Critical Thinking Teaching in Sudanese Schools

Continuous policy changes, without consideration of their impact, due to the narrow political views of those in power have negatively affected the education system in Sudan. Although critical thinking per se has never been an educational goal, however, it has been an integral part of various subjects taught in schools. In the experience of the present author, developing the abilities of students to critique, analyze and express their views on the material taught was embedded in teaching at school before 1990. Offering students opportunities to discuss, share their views and question what they learned was part of classroom routine. In subjects such as history, geography, poetry, chemistry, physics or mathematics, creative and problem-solving skills were often encouraged.

At intermediate and secondary levels, extra-curricular activities such as debates, poetry competitions and academic societies engaged students in various

activities with the assistance of teachers. Students were often required to select their own topics and deliver readings before audiences comprised of teachers, parents and fellow students. They would be questioned by the audience about the motives behind their selection and other issues raised. Such activities encouraged students to enhance their reasoning, judgement and thinking abilities as well as self-confidence. Another factor which boosted students' thinking abilities, despite its unfairness, was that until 1990 there were few secondary schools and universities in the country. The level of competition for places in these institutions was therefore high. In the academic year 1988- 89, for example, 115,194 students sat for the Sudan School Certificate.

Among the 71,528 who passed, 16,030 applied for enrolment in higher education institutions but only 5,327 were admitted (Frajallah, 1992). At that time School Certificate examination questions tested students' understanding and their ability to analyze, critique and apply what they learned in other similar contexts. The mere memorization of facts was discouraged and would not enable students to secure good scores. Students were prepared from the intermediate level onwards to digest, analyze and evaluate information not only from textbooks but wider reading too. The quality of education was a priority at all levels and Sudanese university graduates were competitive candidates in job markets regionally and globally. However, although higher education expanded

following the 1990 Education Revolution, its radical changes were hastily implemented. Besides changing the medium of instruction from English to Arabic, the number of universities rose from five in 1990 to twenty-six after 1995, resulting in a huge rise in intake (Frajallah, 1992). Public primary education was extended from 6 to 8 years and, in an attempt to improve quality, the primary and secondary levels were packed with so many subjects that it was hard for students to focus and concentrate. Worse, inadequate funding, poor infrastructure, and shortages of textbooks, laboratories and qualified teachers led to an unprecedented drop in educational standards. As vacancies needed to be filled in the newly established universities, school certificate examination standards were relaxed to allow many students to pass. Even students who failed subjects, who would never have dreamed of a university place before 1990, were enrolled. One result of these changes was that the abilities of students to critique, evaluate and intellectually engage material encountered came to be emphasized much less in schools, focusing instead on memorization, rote learning and the regurgitation of facts. Faced with severe shortages of reference books, lecturers provided written notes for students to memorize for examinations. Poor reasoning among students and a lack of critical engagement with what they learnt have been major defects of Sudanese education ever since.

Students were now graduating from universities without sufficient skills for the job market. Public outcry followed for example, daily newspaper report of the massive failure of law and journalism graduates to pass professional qualification examinations in 2007 (*Al-Rayaam* 27th October, 2007). Some accused the government of not funding education reform; others blamed universities for outdated curricula and a third group called for wholesale reform of the education system from primary school to university. But such results were not surprising to those familiar with the situation after 1990, where students who were used to rote learning would find it hard to deal with material requiring critical thinking and the creative application of theory to the real world, as required in vocational examinations. If students could fail in such huge numbers in their fields of specialization, how could they be expected to lead development in these areas?

Some universities responded to demands for change by revising syllabuses and considering the inclusion of critical thinking skills as a subject. For example, the Ahfad University for Women introduced critical thinking skills as a general course in its curriculum in 2008. Moreover, the objectives of the new Southern Sudan curriculum for secondary schools include creativity and critical thinking abilities as well as developing students' life-long interest in learning. These steps, coupled with the demands of the job market and the general public's clamour for

improvements in education standards, may encourage learning institutions to think seriously about embracing critical thinking skills in their curricula. However, this requires more research and professional training of teachers on how to teach critical thinking skills; a move which seems to be underway at the moment.

2.7 Conceptual Framework of the Study

This study has adopted as its conceptual framework, with minor modifications, the Integrated Model for Understanding Thinking and Learning proposed by Moseley *et al.* (2005). This model partly aims to strengthen cognitive and metacognitive skills in learning processes, identifying three strategies activated through combined reading and writing activities. It is hypothesized that engaging students in purposeful reading-writing activities which focus on close reading strategies and the mastery of persuasive writing structures will improve their creative and critical thinking abilities. This, in turn, would enable them to judge, reason and generally become conscious of their strengths and weakness, which may improve the quality of their argumentative writing. The three **strategies are:**

1. Information gathering: the ability to access knowledge from memory, reading or observation, comprising mainly lower-order thinking as a way of gaining knowledge that could later be restructured, reconstructed and reinterpreted through higher-order thinking. Tools include

experiencing, recognizing and recalling, and comprehending messages and recorded information.

2. Building understanding: knowledge reconstruction through understanding, elaboration and the use of background knowledge, including the development of meaning (elaborating, representing or sharing ideas), working with patterns and rules, concept formation, and organizing ideas.

3. Productive thinking: higher-order thinking consisting of reasoning, understanding causal relationships, systematic enquiry, problem-solving, decision making and critical and creative thinking. These learning processes lead to a deeper understanding of the nature, justification, implications, and value of what is learnt.

Moseley and his associates argue that productive thinking can be just like any other form of thinking, but as a higher form of thinking it is supported by dispositions, and strengthened and revitalized by feelings and determination. Such invigoration would lead to critical, creative and caring thinking (Lipman, 2003) and so the model successfully combines the elements and characteristics of critical thinking summarized by Hager *et al.* (2003), cited at the beginning of this chapter, in terms of abilities and dispositions.

The dispositions needed for productive thinking are metacognitive skills. Good thinking that facilitates good learning resides in an individual’s ability to reflect on his/her conscious and unconscious thinking and strategies

during task performance, which Moseley *et al.* (2005) term ‘strategic and reflective thinking’ placed at the top of their diagram connected with two way arrows with each of the cognitive skills explained above because these skills can sometimes be exercised effectively in unplanned and unreflective ways.

2.8 Critical Thinking and Writing-to-Learn

John Bean (1996) asserts that “[g]ood writing assignments produce…the need to join, in a reasoned way, a conversation of differing voices” (p. 19). Literature is important for each of us because it helps us share our “voices,” see one another as equal yet different human beings, and stimulates discussion about ideas. To “appreciate the connection between good thinking and good writing, [one] needs to see knowledge as something other than discrete bits of information to be studied and stored in memory (Bean, 1996, p. 17). In other words, students need to learn to think critically about knowledge and the world—to evaluate information and reach an educated opinion about it, not merely accept it at face value. Students today live in an information-driven society. The challenge for them is to learn how to evaluate and use that information-to find the *meaning* in the knowledge-so that the knowledge can successfully be applied to new situations. When we write-to-learn what we think, we are practicing critical thinking in its basic form. A letter to a relative, a note to a friend, and a diary entry are all

examples of the writing-to-learn theory if the writer discovers what she thinks as she is writing.

Write-to-learn assignments capitalize on students' prior knowledge and force them to evaluate that knowledge in order to reach meaningful, personalized conclusions. Hence, such assignments allow students to build on prior knowledge in order to progress to the next cognitive level of maturity. Moreover, write-to-learn strategies generally utilize Bloom's Taxonomy of Educational Objectives (1956), specifically the levels of application, analysis, evaluation, and synthesis.

2.9 Generating critical Thinking

1. Identify a topic. T his can be your essay title, a subtopic, or a point you might want to explore in a particular section or paragraph. Write key words in the middle of a sheet of paper, or a blank document screen .

2. Try to answer the questions on the diagram starting with 'what ' questions. Your answers may become part of an introduction, defining your terms or identifying issues .

3. Using the 'w ho ' , 'w hen,' and 'w here Questions, generate descriptive background information . This will provide context or scene – setting material which is also useful for an introductory section. 4. 'How' requires consideration of the ways that something operates or works – e.g. processes or procedures . Attempting to answer questions using 'how' takes you from descriptive to more analytical work.

5. ‘Why’ also moves you deeper into analytical territory. It gets
you to find reasons , explanations or causes. Think about all the possible questions to do with ‘why’ (see the model below for some suggestions).

Answers to such questions are likely to emerge over time from your reading and use of specific theories and findings reported in academic journals; published books and research reports; or from other authoritative sources such as policy documents.

6. Asking questions using ‘what if ’ moves you into a more evaluative phase of you r thinking. It helps you to consider the possible implications or results of a particular action. This question is also useful for considering predictive work done by others, or engaging in forecasting of your own.

7. ‘So what ? ’ is really the key question for an evaluation. It gets you thinking about value or values , meaning and significance . It is also about discriminating between more or less important factors in any situation. It helps you to think through and justify your own position, and discuss its implications.

8. ‘What next?’ might refer to recommendations and predictions that your argument has brought to light. It leads you to consider and plan for more specific actions that might be necessary in certain kinds of assignment , such as a project or business report.

Harris, J. (2008)Pottery Identification Sheet ONLINE: http://www.scribd.com/doc/3888712/Pottery-identification_sheet accessed 30.05.2010.

2.10 Concepts of argument:

The term ‘argument’ is used in different ways in academic discourse, ranging from the philosophical construct of premises and conclusions (Toulmin, 1958) to diverse writing practices (Mitchell et al., 2008). It can refer to individual claims or the whole text. In reference to individual claims, argument means that a proposition is supported by grounds and warrants. As Davies points out, this type of argument requires the ability to make inferences, and can be taught through syllogisms such as ‘if Socrates is a man and all men are mortal, then Socrates is mortal’ (2008: p. 328). In reference to the whole text, ‘argument’ is defined by Andrews (1995: p. 3) as ‘a process of argumentation, a connected series of statements intended to establish a position and implying response to another (or more than one) position’. Toulmin, Reike, and Janik (1984: p. 14) define argument similarly as ‘the sequence of interlinked claims and reasons that, between them, establish content and force of the position for which a particular speaker is arguing’. According to these definitions, the core component of argumentation is clearly the development of a position, which can also be regarded as equivalent to the development of an argument. Another component is the presentation of the position through the logical arrangement of the

propositions that build this position, which is mentioned in Andrew's definition as the 'connected series of statements', and in Toulmin et al's as the 'sequence of interlinked claims and reasons'. However, there is a third component which students have to learn in order to write argumentative essays, which is 'to analyse and evaluate content knowledge' (Wu, 2006: 330). This component concerns the selection of relevant information from sources, and its use in the development of the position. The definition is useful from a pedagogic perspective because it describes the abilities writers need to develop in order to be successful in writing argumentative essays (Wu, 2006). As will be shown later, the definition is also helpful for identifying students' learning needs, as well as shortcomings in the teaching of argumentative writing. Research has shown that many academic teachers and students have fuzzy concepts of argumentation, which may be linked to a fuzzy understanding of what the genre 'essay' entails. As Johns (2008) points out, essay is difficult to define as a genre, because it is used as an umbrella term for various types of discipline-specific writing, and the characteristics of structure, register and argumentation vary greatly across disciplines. It is therefore obvious that the specific requirements of the essay in a given discipline should be explained to students by disciplinary experts. At the same time, the essay has low prestige being a student genre, not one that disciplinary experts have to write. Their understanding of

the exact nature of the essay in their discipline may therefore be implicit and vague. Furthermore, what is accepted as a well-formed and valid argument in an essay depends on the discipline's value system and epistemology, and there is great variation across disciplines (Andrews, 2010; Samraj, 2004). To explore students' and tutors' conceptualisations, Mitchell et al. (2008) interviewed first-year students and tutors in three disciplines. The students had partial understandings of argument, for instance 'a for-and-against structure sandwiched between introduction and conclusion' (p. 235). Tutors were equally uncertain about the concept. When asked how they taught students to argue, they used critique, critical analysis and even opinion as interchangeable terms of explanation. In Lea & Street's (1998) study, academic tutors across a range of disciplines recognised argument as the key element of successful writing, but had difficulty to explain the nature of a well-developed argument. In their feedback to students, they referred to 'what feels like familiar descriptive categories such as "structure and argument", "clarity" and "analysis"' (p.163). Mitchell and Riddle (2000: p.17) notice that academics also have weak understanding of related abilities such as 'analysis' and 'evaluation'. Equally vague is tutors' interchangeable use of the term 'argument' in the plural form (e.g. 'you did not back up some of your arguments'), and in the singular form (e.g. 'you failed to provide a coherent argument'). This obscures the fact that

it is the development of a position, reflected in ‘the large-scale structuration of the essay’ (Andrews, 1995: p. 139), rather than the 146 U. Wingate / Journal of English for Academic Purposes 11 (2012) 145–154 evidence for individual claims, that determines the quality of an essay. This conceptual uncertainty leads to unhelpful advice and inadequate teaching of argumentation. As Swales (1990: p. 84) argues, students need appropriate content and formal schemata in order to make ‘allowable contributions’ to a genre. The formal schemata concern the rhetorical elements of the genre, such as structure, style, and register, and are needed for the appropriate presentation of the writer’s position

(Component 3 of the definition). As these schemata were formed by previously encountered texts, Students new to university will have schemata of previously encountered texts, i.e. essays they had to write at school, which may need to adjusted for the genres required at university.

2.11 Learning argumentation

School essays are often confined to relatively simple argumentative structures (Andrews, 1995). A typical essay in humanities subjects requires that the writer states a claim on a controversial issue and supports this claim by evidence in order to convince the audience (Wood, 2001). This genre often takes the format of the ‘five paragraph’ essay which consists of the introduction of the topic, the statement of a claim, three supporting paragraphs for the claim and a concluding paragraph

(Bacha, 2010). In contrast to school writing which tends to invite the statement of the author's personal opinion, academic writing requires the presentation of a considered opinion, based on the careful analysis of various and conflicting sources (Andrews,1995). Furthermore, writing at university is seldom about making one claim, and therefore requires structures that can support more complex ideas. Therefore, students new to university have to adjust previously learnt formal schemata such as structure and register.

The three components of developing an argument, used as the definition in this paper, pose considerable difficulties for the novice writer. Analysing and evaluating content knowledge presupposes a certain level of subject knowledge which would enable students to distinguish relevant from irrelevant information in the literature. Due to their lack of subject knowledge, however, many students struggle to identify conflicting points of view in the literature (Andrews, 1995). The second element, establishing a position, requires expressing a 'voice' and a 'stance' (Street, 2009) in an academic debate conducted by experts, and achieving a 'workable balance between self and sources' (Groom, 2000: p. 65). 'Voice' and 'stance' are among the 'hidden features' of academic writing described by Street (2009), which have much impact on the success of writing, but are rarely made explicit to students. The difficulties these requirements pose for the novice writer have been widely discussed

(e.g. Ivanic,1998; Lillis, 2001). Groom (2000) describes three patterns of difficulty. The first, called ‘solipsistic voice’, means that students express their own experiences and opinions without reference to the literature. The second, the ‘unaverred voice’ refers to students who offer ‘a patchwork of summaries of other authors views’ (p. 67) without making own claims. The reason for this rather typical pattern is students’ lack of confidence in taking a stance in relation to published authors. Essays that present the unaverred voice are usually accused of lacking criticality. The third pattern is the ‘unattributed voice’; here students make propositions sound as if they were their own idea when in fact they were taken from another source. The third component of developing an argument, the presentation of the writer’s position in a coherent manner, involves the ‘arrangement and re-arrangement’ of propositions at the macro level (Andrews, 1995; p.29) so that the development of the position is reflected in a logical text structure. According to Andrews, this component is not addressed in most study guides and textbooks. It requires an adjustment of the formal schema of structure which is difficult for students who have so far only learnt to support one claim in a simple formulaic structure.

2.12 Teaching argumentation

The importance of making argumentation ‘the focus of deliberate educational practices’ has been repeatedly stressed (e.g. Davies, 2008: p. 327; Mitchell & Riddle,

2000); however, this is not part of the teaching provision in undergraduate programmes at British universities, where argument is in some cases taught generically on Critical Thinking courses. Nevertheless, as Mitchell and Riddle (2000: p. 27) assert, argument cannot be modelled and transferred from one context to another, because the genre ‘argumentative essay’ and therefore the nature of argumentation are highly discipline-specific, and should therefore be taught by ‘mainstream teaching staff’ (Mitchell & Riddle, 2000: p.18). By contrast, Davies (2008) proposes the teaching of argument through syllogisms and claims that the skill of logical inference-making can be learnt outside the discipline. This approach is based on the Toulmin model which describes argument by the units of claim, grounds,
warrant and backing (Toulmin et al., 1984). Mitchell and Riddle (2000) used the Toulmin approach for teaching argument in various disciplines, after having simplified its terminology from ‘claim, grounds and warrant’ to ‘then, since, because’. The Toulmin model is also followed in some study guides (e.g. Fairbairn & Winch, 1996); however, it seems that it renders itself more easily to the analysis and construction of single claims and is less helpful at the macro level. Although Mitchell and Riddle (2000) claim that the model can be applied to longer texts, there is no evidence of how this would work. Therefore, it seems that if the Toulmin model is used in the teaching of argumentation, it needs to be combined with

methods that address the large-scale structure or macro level of the essay. Indeed, most authors who advocate the Toulmin model also recommend additional procedures to address the macro level. Mitchell & Riddle suggest a four-stage procedure concerned with the overall text organisation; similarly, Bacha (2010) used the Toulmin model in combination with organisational plans adapted from Reid (1988). Davies (2008) also proposes a six-step procedure for planning and developing the whole essay, and only in step 5 is the syllogistic argument form used 'to guide the connection between premises and conclusions'. Furthermore, it tells students that they must develop an argument when 'what struggling students are looking for is something that will show them what these things mean, how they work, and what they look like in and as text' (Groom, 2000: p. 70; italics in original text). Feedback comments are a 'key factor in learning to write' (Hyland & Hyland, 2006: 206), and could be a particularly effective method of giving individual and specific guidance for the improvement of argumentation. However, this opportunity is often missed because feedback is expressed in a way that students do not understand (Walker, 2009), or in the form of 'categorical modality' (Lea & Street, 1998: p. 169), i.e. in imperatives and with exclamation marks.

2.13 Essay Writing

"Essay writing is at the heart of most academic study" (Warburton, 2007, p.11). He thinks that *talking* about what you know is not enough; hence, you need to

be able to make a clear and well-argued case in writings, based on appropriate research. He also believes that skills are built on good habits that are patterns of behavior that you don't need to think about, usually because you have practiced them many times before. And once you have got into a good habit, life gets easier. He mentions that if someone has a reasonable grasp of her/his subject and the will-power to practice writing, s/he can make significant improvements very quickly. “If you want to improve, then you need to *write*, not just read about writing.” (p.3)

2.14 What is ‘Argument’ in an Argumentative Essay:

Bowell and Kemp (2002) define arguments as “to attempt to persuade by giving good reasons is to give an argument” (p.2). They further mention that critical thinkers primarily should be interested in arguments and whether they succeed in providing us with good reasons for acting or believing. They mention that it is surprising to think of an „argument‟ as a term for giving someone a reason to do or believe something.

2.15 Some Elements Of Critical Thinking:

2.15.1Effect of Knowledge of Purpose and Objective:

A **Purpose** is always specific. It’s difficult to know what we’ve achieved if the goal is vague. When a goal is precise, then mapping the way to it is easier. Make sure that the Purpose is focused and clearly stated.

The Purpose should be measurable so that we can know if it has been reached or not. If we do not achieve a specific Purpose, then we have not achieved the goal, what we intended to do. Either the goal is reached…or it is not. From http://critical thinking .org .com

2.15.2 Analysis Information and data

Information All reasoning is based on data, information and evidence.

- Restrict your claims to those supported by the data you have.
- Search for information that opposes your position as well as information that supports it.
- Make sure that all information used is clear, accurate and relevant.
- Make sure you have gathered sufficient information.

Foundation for Critical Thinking; Paul and Elder.2003.

Using Clear Concepts: 2.15.3

Concepts All reasoning is expressed through, and shaped by, concepts and ideas.

- Identify key concepts and explain them clearly.
- Consider alternative concepts or alternative definitions of concepts.
- Make sure you are using concepts with precision.

From Foundation for Critical Thinking; Paul and Elder.2003.

Awareness of implications and consequences 2.15.4

All reasoning leads somewhere or has implication and concequences.

¬ Trace the implications and consequences that follow from your reasoning.

¬ Search for negative as well as positive implications.

¬ Consider all possible consequences.

From Foundation for Critical Thinking; Paul and Elder.2003.

2.16 Benefits of Critical Thinking In improving EFL Learners' Classroom Performance:

The ability to think critically is an essential life skill in American society today; as the world changes at an ever-faster pace and economies become global, young adults are entering an expanding, diverse job market. To help young Americans compete for jobs that did not even exist a few years ago, it is necessary now more than ever before to ensure that young adults possess the thinking power to flexibly and creatively adapt to new job markets. According to Mendelman (2007), the majority of Sudanese schools fail to teach critical thinking and, as a result, the majority of our populace does not practice it (p. 300). Hayes and Devitt (2008) stated generally, critical thinking strategies are not extensively developed or practiced during primary and secondary education (p. 65). School systems need to amend curriculum to ensure that high school graduates have developed a solid foundation of critical thinking skills, enabling young adults to be more successful in their pursuits after high school. Since the enactment of the No Child Left Behind Act of 2001,

pressure has been on school districts to demonstrate student progress and competency via standardized test scores. In today‘s accountability climate…critical thinking activities can take a back seat to test preparation‖ (Pescatore, 2007, p. 330). Rather than embarking on frustrating attempts to cram students full of simple recall facts in the weeks prior to a round of standardized tests, it may be more beneficial long-term for students to be able to utilize factual information as a framework for critical exploration of broader concepts. While it may be tempting to teach to a test, however, students don‘t live in a multiple choice/true or false world. Paul and Elder (2008) insisted that multiple-choice tests are rarely useful in assessing life situations and instead teachers should develop the kinds of intellectual tasks students will perform when they apply the subject matter to professional and personal issues in the various domains of their lives (p. 34). Teachers are obligated to help students develop the skills necessary to synthesize the nuances of a modern, complex society. Beyond the personal benefits experienced by adults adept at critical thinking more opportunities, better jobs, higher income society also benefits when the general populace can think creatively and insightfully. According to Pescatore (2007), —for social change to occur, citizens must not only think critically about what they read and view, but they must also react to transform the world (p. 330). Rather than accepting

information at face value, educated critical thinkers can thoughtfully explore the broader perspectives of an issue.

The National Association for Media Literacy Education (2010) advocated explicit teaching of critical inquiry, encouraging students in active inquiry and critical thinking about the messages that we receive and create (cited in Thein, Oldakowski, & Sloan, p. 23). The ability of students to explore issues thoughtfully —offers a way to speak out against injustice and unfairness (Pescatore, 2007, p. 330). Critical thinking skills do not occur randomly or without effort; it takes structured, deliberate, and repetitive exposure and practice for students to develop insightful thinking.

The high school English classroom is a logical environment in which to explicitly teach, and practice, critical thinking with the goal of developing lifelong habits of mind. As Mendelmen (2007) pointed out, If reading the world can be paralleled to reading text, then literature offers an ideal vehicle for teaching the critical skills necessary in analysis (p. 300). The intent of this research is to comprehensively explore current research and strategies for incorporating critical thinking into high school English curricula Mendelman (2007) claimed that in a day and age in which more and more children grow up engaged with primarily passive activities teaching critical reading is one of the most important, and most difficult burdens of the classroom (p. 300). If students are not exposed to, and do not master, the ability to think

insightfully and critically, they will be unable to compete in a modern, global economy. In order to better prepare our students for the challenges they will face, high school teachers need to explicitly teach critical thinking strategies, equipping young people with twenty-first century skills. The high school English classroom presents a natural setting to practice critical thinking, as it is customary for English instructors to work with students on analyzing all types of text for word choice, point of view, tone, and structure to develop the skills of critical thinking —that can have clear relevance to students‘ lives (Pescatore, 2007, pp. 336-337). A rigorous English curriculum, focused on an explicit, scaffolded approach to teaching critical thinking skills, will better prepare university students for college and employment.

2.17. Critical Thinking Instruction: Role of Educators:

Teachers, on all levels from preschool through graduate studies, need to progressively push students to develop higher levels of critical thinking. Hayes and Devitt (2008) purported that to ensure development of critical thinking strategies, implementation of instructional activities that provide an opportunity for discussion related to topics, concept, and intellectual skills are necessary (p. 66). Paul and Elder (2008) insisted that educators must structure lessons to enable increasing levels of challenge; it is important to teach so that students learn to think their way into and through content.

We stress the need for well-designed daily structures and tactics for fostering deep learning (p. 34). Mendelman (2007) recommended that educators must scaffold thinking skills so that students are more likely and more prepared to make this final jump [to critical thinking] (p. 301). Pescatore (2007) agreed, explaining that when students think critically, they interact with the text skillfully analyzing the message, comparing that message with their previous knowledge, considering alternate positions, and synthesizing the information gained into a richer knowledge base (p. 326). As part of developing a rigorous critical thinking program, teachers should have the freedom to choose the literature that will help students develop as critical thinkers (Pescatore, 2007, p. 336). In other words, educators need to find engaging text, even if that means moving beyond the traditional textbook so university teachers have to adapt the materials they want which will develop learners critical thinking. Pescatore (2007) cautioned that traditional textbooks try to cover too many topics and fail to acquaint students with controversies and historical arguments effectively texts supply information that is irrelevant, wrong, or boring (p. 336). Selection of engaging material can be a conduit to more traditional literature. In this multimedia age, visual and auditory media are supplementing text resources to make the presentation of information more engaging (Coughlin, 2010, p. 50). If

students are engaged, it is more likely that the work of building critical thinking can occur.

2.18 Specific Critical Thinking Strategies

Teaching of critical thinking plays an essential role in helping individuals develop habits of ethical self-analysis and self-assessment, enabling students to broaden their perspectives. To cultivate the intellect requires developing intellectual skills, tools of mind that enable the thinker to reason well through any question or issue, to think through complexities and confusions, to empathize with competing viewpoints and world views. It requires, in short, the tools of critical thinking (Paul & Elder, 2009a, p. 286). The question for educators, then, is how to go about incorporating tools of critical thinking in university curriculum. Four useful ways to integrate critical thinking into the curriculum are the inclusion of problem solving, asking questions that require critical analysis, evaluating sources and decision making (Hayes & Devitt, 2008, p. 66). Bernasconi (2008) challenged students to see reading as a process; he encourages students to read text more than once and as they do so, to question the text to determine the author‘s argument and the text‘s stylistic choices and structure. Students also learn annotating, summarizing, and descriptive outlining, skills crucial to making meaning from a text also for writing also when learners write they will activate their minds specifically when the writing task is argumentative essay (p. 17). Mendelmen (2007) suggested an image-concept approach

in an attempt to transition from the tangible to intangible; while reading text, Mendelmen asked her students to identify all images and concepts present, and after this is mastered, she challenges her students to move from verbal analysis, to written analysis communicating tangibles and intangibles present in the work (p. 301). Thein, Oldakowski, and Sloan (2010) advocated a model of inquiry-based English instruction designed to help students understand the constructed nature of lived and text worlds and to critique the messages they forward (p. 24). The intent is to make students more aware of who they are, how they live, and their impact on the world. Beyer (2008) advised that one of the most effective ways to teach critical thinking is to make these components explicit obvious, specific, clear and precise. When we make as explicit as possible how and why, step by step, to carry out a skill efficiently and effectively, we enable our students to become more conscious of how and why they actually do‘that skill (p. 197). Regardless of the specific approach being used, when students engaged in critical evaluation of problems via classroom discussion, their critical thinking strategies improve (Hayes & Devitt, 2008, p. 66).

2.19Benefits of critical thinking- Better Understanding of Self and Society

Adopting a critical thinking approach in the classroom will yield benefits well beyond academic success, especially when students are prompted to analyze their decision-making in an ethical light. Pescatore (2007) advocated critical thinking instruction because it has the added benefit of fostering engagement in the public interest rather than just self-interest, enabling university learners to become significant forces for change (p. 339). Without guidance and intervention, however, human beings tend to maintain narrow, self-interested perspectives (Paul & Elder, 2009b, p. 37). Elder and Paul (2009) feared that students receive critical thinking instruction without being challenged to clearly understand and asses their decisions in an ethical framework. These students develop intellectual skills which enable them to get what they want without being bothered with how their behavior might affect others. By teaching critical thinking without ethics, one runs the risk of inadvertently fostering sophisticated rather than fair-minded critical thinking (p. 36). Critical thinking can be a powerful tool in helping individuals avoid relinquishing the power each of us has to investigate and examine an issue from multiple perspectives so as not to be manipulated by any one (Pescatore, 2007, p. 330).By other words in the broadest sense, if the goal of education is the formation of citizens empowered and emboldened to act as a result of their conscious enlightenment, critical thinking most be taught in an ethical framework (Pescatore, 2007, p. 330). Paul

and Elder (2009b) supported this, stating that it is impossible to develop as ethical persons without facing the fact that every one of us is prone to egotism, prejudice, self-justification, and self-deception and that these flows in human thinking are the cause of much human suffering. Only the systematic cultivation of fair-mindedness, integrity, self-knowledge, and deep concern for the welfare of others can provide foundations for sound ethical reasoning (p. 37) Albergaria Almeida (2010) maintained that one of the main aims of secondary and tertiary level teaching is the development of critical, reflexive and creative thinking, in order to provide students with the necessary tools to become active and autonomous citizens, as well as lifelong learners (p. 590). By teaching critical thinking with an ethical perspective, teachers contribute to creating educated persons who are able to enter viewpoints alien to them and think within those viewpoints clearly and accurately in good faith (Paul & Elder, 2008a, p. 91). If the aim of education is not only to make students employable, but also guide them to be cognizant of the world and an understanding of the plight of individuals around them, critical thinking can be a powerful tool in accomplishing this aim. Bernasconi (2008) agrees that critical thinking cannot be taught in isolation; it is important to acknowledge to students that the necessity for reading, writing in particular because students will think and jot down their ideas in written tasks specifically in argumentative essay because it needs high

range of thinking, and thinking proficiently extends to other facets of society (p. 19). For social change to occur, citizens must not only think critically about what they read and view, but they must act and react to transform the world (Pescatore, 2007, p. 330).

2.20 Critical Thinking Framework for any Discipline:

Thinking is a natural process, but left to itself, it is often biased, distorted, partial, uninformed, and potentially prejudiced; excellence in thought must be cultivated (Scriven and Paul, 2004). Critical thinking is, very simply stated, the ability to analyze and evaluate information. Critical thinkers raise vital questions and problems, formulate them clearly, gather and assess relevant information, use abstract ideas, think open-mindedly, and communicate effectively with others. Passive thinkers suffer a limited and ego-centric view of the world; they answer questions with yes or no and view their perspective as the only sensible one and their facts as the only ones relevant. Critical thinking is an important and necessary skill because it is required in the workplace, it can help you deal with mental and spiritual questions, and it can be used to evaluate people, policies, and institutions, thereby avoiding social problems (Hatcher and Spencer, 2005).

Here are five step framework that can be implemented in virtually any teaching or training setting to effectively move learners toward critical thinking. This

interdisciplinary model, which is built upon existing theory and best practices in cognitive development, effective learning environments, and outcomes-based assessment, provides teachers with a useful framework in which to move students and lecture-based courses toward an active-learning environment.

2.21 Techniques That Encourage Critical Thinking

The lecture format of learning is a venerable and popular approach to content delivery in higher education; however, it frequently does not encourage active learning or critical thinking on the part of students. Those new to the teaching profession often adopt the lecture format because it is both teacher-centered and comes with a strong academic tradition. Unfortunately, it is very difficult to increase a student's critical thinking skills with the lecture format. Topics are discussed sequentially rather than critically, and students tend to memorize the material since the lecture method facilitates the delivery of large amounts of information.

The student is placed in a passive rather than an active role since the teacher does the talking, the questioning, and, thus, most of the thinking (Maiorana, 1991). Active learning can make the course more enjoyable for both teachers and students, and, most importantly, it can cause students to think critically. For this to happen, educators must give up the belief that students cannot learn the subject at hand unless the

teacher covers it. While it is useful for students to gain some exposure to the material through pre-class readings and overview lectures, students really do not understand it until they actively do something with it and reflect on the meaning of what they are doing. There have been many definitions of critical thinking over the years. Norris (1985) posited that critical thinking is deciding rationally what to or what not to believe. Elder and Paul (1994) suggested that critical thinking is best understood as the ability of thinkers to take charge of their own thinking. Harris and Hodges (1995) declared critical evaluation as the process of arriving at a judgment about the value or impact of a text by examining its quality.

The taxonomy offered by Benjamin Bloom some 50 years ago offers a straightforward way to classify instructional activities as they advance in difficulty (Bloom, 1956). The lower levels require less thinking skills while the higher levels require more. The theory of critical thinking began primarily with the works of Bloom (1956), who identified six levels within the cognitive domain, each of which related to a different level of cognitive ability. *Knowledge* focused on remembering and reciting information. *Comprehension* focused on relating and organizing previously learned information. *Application* focused on applying information according to a rule or principle in a specific situation. *Analysis* was defined as critical thinking focused on parts and their functionality in the whole. *Synthesis* was defined as critical thinking

focused on putting parts together to form a new and original whole. *Evaluation* was defined as critical thinking focused upon valuing and making judgments based upon information. In the context of this paper, critical thinking is deemed to take place when students are required to perform in the *Analysis, Synthesis,* and *Evaluation* levels of Bloom's taxonomy. To provide the greatest benefit to students, teachers should provide many opportunities for students to engage in the upper levels of Bloom's taxonomy where critical thinking takes place. While most teachers believe that developing critical thinking in their students is of primary importance (Albrecht & Sack, 2000), few have an idea exactly what it is, how it should be taught, or how it should be assessed (Paul, Elder, & Batell, 1997). A 5-step framework that can be implemented in any classroom or training setting to help students gain critical thinking skills.

2.22 Step Model to Move Students Toward Critical Thinking:

2.22.1. Determine learning objectives.

Considering the importance of a course, its placement in a program of study, and its role in providing a base of knowledge to be built upon by other courses, a teacher should first identify the key learning objectives that define what behaviors students should exhibit when they exit the class. To make critical thinking happen, these learning objectives, as well as the activities and assessments, must include those tied to the higher levels

of Bloom's (1956) taxonomy. A well-written objective should include a behavior that is appropriate for the chosen level of the taxonomy. Bloom's *Knowledge* level requires an answer that demonstrates simple recall of facts. Questions at this level could ask students to answer who and what and to describe, state, and list. *Comprehension* requires an answer that demonstrates an understanding of the information.

Questions at this level might ask students to summarize, explain, paraphrase, compare, and contrast.

Application requires an answer that demonstrates an ability to use information, concepts and theories in new situations.

Questions at this level may ask students to apply, construct, solve, discover, and show. *Analysis* requires an answer that demonstrates an ability to see patterns and classify information, concepts, and theories into component parts.

Questions at this level could ask students to examine, classify, categorize, differentiate, and analyze. *Synthesis* requires an answer that demonstrates an ability to relate knowledge from several areas to create new or original work.

Questions at this level might ask students to combine, construct, create, role-play, and suppose. Finally, *Evaluation* requires an answer that demonstrates ability to judge evidence based on reasoned argument.

Questions at this level may ask students to assess, criticize, recommend, predict, and evaluate. Thus, a well-written lesson plan should target a specific behavior, introduce and allow for practice of the desired behavior, and end with the learner exhibition of the behavioral response.

The development of well-written questions will greatly accelerate a learner's movement into critical thinking. Consider computer security as an example. Say that the objective is: “Students will be able to classify common security threats by category.” The verb *classify* is a behavior typically identified with the *Analysis* level of Bloom’s taxonomy. The three categories (natural disasters, employee errors, crime) would be presented to the students using questions to enhance the students’ understanding.

These questions could include (a) “What natural disasters are common in the area in which you currently live?” (b) “Are employee errors intentional acts?” and (c) “What computer crimes or acts of fraud have you read about in the past two months?” Once an understanding of the basic categories has been established, the students are placed in groups and assigned a business. Students will then be asked to identify at least three security threats from each category for that business to be shared in discussion with the entire class. Finally, students are asked individually to classify security threats by category for a business on the exam.

2.22.2: Teach through questioning.

Questioning is a vital part of the teaching and learning process. It allows the teacher to establish what is already known and then to extend beyond that to develop new ideas and understandings. Questions can be used to stimulate interaction between teacher and learner and to challenge the learner to defend his or her position, (i.e., to think critically). Clasen and Bonk (1990) posited that although there are many strategies that can impact student thinking, it is teacher questions that have the greatest impact. He went on to indicate that the level of student thinking is directly proportional to the level of questions asked. When teachers plan, they must consider the purpose of each question and then develop the appropriate level and type of question to accomplish the purpose. All students need experience with higher level questioning once they become familiar with a concept. Thoughtful preparation on the part of the teacher is essential in providing that experience.

Questioning techniques can be used to foster the thinking ability of students. Questions can be categorized in a number of different ways. One simple method is to use the general categories of convergent and divergent questions. Convergent questions seek one or more very specific correct answers, while divergent questions seek a wide variety of correct answers. Convergent questions apply to Bloom's lower levels of *Knowledge,*

Comprehension, and *Application* and may include questions like “Define nutrition,” “Explain the concept of investing,” and “Solve for the value of X.” Divergent questions apply to Bloom's higher levels of *Analysis, Synthesis*, and *Evaluation*; are generally open-ended; and foster student-centered discussion, thereby encouraging critical thinking. For example, “Describe the qualities that make a person successful,” “Create an office design to facilitate group interaction,” and “Describe how sun spots might affect tree growth” are all divergent questions.

To most effectively encourage student participation, teachers must become highly skilled questioners. This is understandably difficult and takes commitment. According to Teaching Strategies (2003), the crucial elements of a skilled questioner are that they: pose brief and concise questions, are prepared to rephrase questions, are prepared to draw further responses from participants, use a variety of techniques, redirect questions/responses, provide feedback and reinforcement without repeating answers, and spread questions around the class.

Elder and Paul (1997) proposed that the art of questioning is essential to the art of learning and that, to the extent that if they fail to ask genuine questions and seek answers to those questions, students are not likely taking the content seriously. Students learn math by asking questions about math, students learn history by asking questions about history, and students learn business by asking questions about business. Teachers can and should use

questioning techniques to inspire critical thinking in the classroom.

2.22.3: Practice before you assess.

In the past decade, a major shift has taken place in education; that shift is toward active learning. Teachers that have used this approach generally find that the students learn more and that the courses are more enjoyable. Bonwell and Eison (1991) described active learning as involving the students in activities that cause them to think about what they are doing. Fink (2003) indicated that the concept of active learning supports research which shows that students learn more and retain knowledge longer if they acquire it in an active rather than passive manner. To make learning more active, we need to learn how to enhance the overall learning experience by adding some kind of experiential learning and opportunities for reflective dialog.

According to Fink (2003), there are two guiding principles that should be considered when choosing learning activities. First, activities should be chosen from each of the following three components of active learning: *Information and Ideas, Experience,* and *Reflective Dialog*. *Information and Ideas* include primary and secondary sources accessed in class, outside class, or online; *Experienc*e includes doing, observing, and simulations; *Reflective dialog* includes papers, portfolios, and journaling. Second, whenever possible, direct kinds of learning activities should be used. Examples of direct

activities include doing in an authentic setting, direct observation of a phenomenon, reflective thinking, service learning, journaling, and dialog in or outside of class. One very important ingredient of active learning is in-depth reflective dialog. This provides students with the opportunity to reflect on the meaning of their learning experience. One can reflect with oneself, as in a journal, or with others, as in a class discussion. According to Fink (2003), in reflective writing, students should address the following questions: What am I learning? What is the value of what I am learning? How am I learning? What else do I need to learn? When teachers think about what should happen in a course, it is important to consider the kinds of active learning that can encourage critical thinking. To enhance the overall learning experience and to create a complete set of learning activities, it is necessary to enlarge the view of active learning to include getting information and ideas, experience, reflection, and, when possible, direct experience.

2.22.4: Review, refine, and improve.

Teachers should strive to continually refine their courses to ensure that their instructional techniques are in fact helping students develop critical thinking skills. To accomplish this, teachers should monitor the classroom activities very closely. To track student participation, a teaching diary can be kept that identifies the students that participated, describes the main class activities, and provides an assessment of their success. Other reflective

comments can also be tracked in this journal and can be very useful when revising or updating instructional activities.

Student feedback is also an important tool to be used in the improvement of a course. Angelo and Cross (1993) suggested numerous methods for collecting key information related to student learning and response to instructional techniques. One such method, the 2-minute paper, asks students to identify the most important point learned. Teachers can review the comments and use them in future classes to emphasize issues identified. Chain notes can be implemented with an envelope bearing a key question on it that students respond to by placing their answers in the envelope. Discussing the patterns of responses with the students can lead to better teaching and learning. Memory matrixes are also useful in the collection of student feedback; students are asked to fill in two-dimensional cells with labels related to a concept. For example, labels may correspond to different periods of history and students would be asked to classify events. The teacher can look for patterns among the incorrect responses and decide what might be the cause(s).

These types of activities can also have positive benefits for the students. Students will become better monitors of their own learning. Students may find they need to alter study skills to improve their success in the course. Students will witness, firsthand, that the teacher cares about their learning. *Step 5: Provide feedback and*

assessment of learning. Teacher feedback, like assessment, compares criteria and standards to student performance in an effort to evaluate the quality of work. However, the purpose of feedback is to enhance the quality of student learning and performance, rather than to grade the performance, and, importantly, it has the potential to help students learn how to assess their own performance in the future. Feedback allows the teacher and student(s) to engage in dialogue about what distinguishes successful performance from unsuccessful performance as they discuss criteria and standards (Fink, 2003).

Teachers should provide good feedback to their students through frequent opportunities to practice whatever they are expected to do at assessment time. Teachers should spend ample time helping students to understand what the criteria and standards are and what they mean. Student peers may also provide feedback and evaluation. Each of these techniques help students learn to distinguish between satisfactory and unsatisfactory performance.

When providing feedback, teachers should be both thoughtful and purposeful. According to Wlodkowski and Ginsberg (1995), teachers should provide feedback that is informational rather than controlling, based on agreed-upon standards, specific and constructive, quantitative, prompt, frequent, positive, personal, and differential (i.e.,

indicating personal improvement since the last performance).

Finally, it is important to note the importance of assessment to the 5-step model itself. Information gleaned from student feedback and assessment provides an immediate and significant source of information to the teacher with respect to which objectives were met, the effectiveness of specific learning activities, things to start or stop doing, effectiveness of feedback on standards, etc. This information should be used to continually improve courses and can in turn become a valuable part of a department or discipline's outcomes-based assessment efforts.

Relationship of Critical Thinking to Other Concepts 2.23

As a way of defining the concept of critical thinking, many researchers have drawn connections to other skills commonly identified as twenty-first century skills, including metacognition, motivation, and creativity. Each of these related concepts will be discussed separately.

2.23.1Metacognition.

Metacognition has been defined most simply as "thinking about thinking." Other definitions include "the knowledge and control children have over their own thinking and learning activities" (Cross & Paris, 1988, p. 131); "awareness of one's own thinking, awareness of the content of one's conceptions, an active monitoring of one's cognitive processes, an attempt to regulate one's

cognitive processes in relationship to further learning, and an application of a set of heuristics as an effective device for helping people organize their methods of attack on problems in general" (Hennessey, 1999, p. 3); and "the monitoring and control of thought" (Martinez, 2006, p. 696). What is the relationship between critical thinking and metacognition? Kuhn (1999) sees critical thinking as being a form of metacognition, which includes metacognitive knowing (thinking that operates on declarative knowledge), meta-strategic knowing (thinking that operates on procedural knowledge), and epistemological knowing (encompassing how knowledge is produced). Likewise, Flavell (1979) sees critical thinking as forming part of the construct of metacognition when he argues that "critical appraisal of message source, quality of appeal, and probable consequences needed to cope with these inputs sensibly" can lead to "wise and thoughtful life decisions" (p. 910). On the other hand, Van Gelder (2005) and Willingham (2007) appear to perceive metacognition as being subsumed under critical thinking when they argue that a component critical thinking skill is the ability to deploy the right strategies and skills at the right time, typically referred to as conditional or strategic knowledge and considered part of the construct of metacognition (Kuhn & Dean, 2004; Schraw et al., 2006). Halonen (1995) identifies metacognition as the ability to monitor the quality of critical thinking. Similarly, Halpern (1998) casts metacognition as monitoring thinking and

strategy use by asking the following kinds of questions: What do I already know? What is my goal? How will I know when I get there? Am I making progress?

Some researchers have argued that the link between critical thinking and metacognition is self-regulation. For example, the APA Delphi report includes self-regulation as one component skill of critical thinking (Facione, 1990). Schraw et al. (2006) draw connections between metacognition, critical thinking, and motivation under the umbrella of self-regulated learning, which they define as “our ability to understand and control our learning environments” (p. 111). Self-regulated learning, in turn, is seen as comprising three components: cognition, metacognition, and motivation. The cognitive component includes critical thinking, which Schraw and associates explain consists of identifying and analyzing sources and drawing conclusions. However, others have argued that critical thinking and metacognition are distinct constructs. For example, Lipman (1988) has pointed out that metacognition is not necessarily critical, because one can think about one’s thought in an unreflective manner. McPeck, on the other hand, argues that the ability to recognize when a particular skill is relevant and to deploy that skill is not properly a part of critical thinking but actually represents general intelligence (1990). At the very least, metacognition can be seen as a supporting condition for critical thinking, in that monitoring the

quality of one’s thought makes it more likely that one will engage in high-quality thinking.

2.23.2Motivation.

Critical thinking is also related to motivation. For example, most researchers view critical thinking as including both skills, or abilities, and dispositions. The disposition to think critically has been defined as the “consistent internal motivation to engage problems and make decisions by using critical thinking” (Facione, 2000, p. 65). Thus, student motivation is viewed as a necessary precondition for critical thinking skills and abilities. Similarly, Halonen notes that a person’s propensity, or disposition, to demonstrate higher-order thinking relates to their motivation (1995). Halpern (1998) argues that effort and persistence are two of the principal dispositions that support critical thinking, and Paul maintains that perseverance is one of the “traits of mind” that renders someone a critical thinker (1992, p. 13). Thus, like metacognition, motivation appears to be a supporting condition for critical thinking in that unmotivated individuals are unlikely to exhibit critical thinking. On the other hand, several motivation researchers have suggested that the causal link goes the other way. In particular, some motivation research suggests that difficult or challenging tasks, particularly those emphasizing higher-order thinking skills, may be more motivating to students than easy tasks that can be solved

through the rote application of a pre-determined algorithm (Turner, 1995).

2.23.3 Creativity.

Finally, many researchers have made connections between critical thinking and creativity (Bailin, 2002; Bonk & Smith, 1998; Ennis, 1985; Paul & Elder, 2006; Thayer-Bacon, 2000). At first glance, critical thinking and creativity might seem to have little in common, or even to be mutually exclusive constructs. However, Bailin (2002) argues that a certain amount of creativity is necessary for critical thought. Paul and Elder (2006) note that both creativity and critical thinking are aspects of “good,” purposeful thinking. As such, critical thinking and creativity are two sides of the same coin. Good thinking requires the ability to generate intellectual products, which is associated with creativity. However, good thinking also requires the individual to be aware, strategic, and critical about the quality of those intellectual products. As the authors note, “critical thinking without creativity reduces to mere skepticism and negativity, and creativity without critical thought reduces to mere novelty” (p. 35). Paul and Elder (2006) point out that, in practice, the two concepts are inextricably linked and develop in parallel. Accordingly, the authors believe both creative and critical thinking ought to be integrated during instruction.

2.24 Development of Critical Thinking:

This section reviews the empirical literature on the critical thinking capacities of the average person, followed by an investigation of critical thinking in young children. Finally, we review one theoretical approach to understanding how critical thinking might appear and develop over time.

2.24.1Critical Thinking in the Average Person

Many researchers working in the area of critical thinking lament the poor state of critical thinking in most educated adults and children. For example, Halpern (1998) points to research from the field of psychology, concluding that many, if not most, adults fail to think critically in many situations. Kennedy et al., (1991) and Van Gelder (2005) have likewise concluded that many adults lack basic reasoning skills. Halpern (1998) cites the example that large numbers of people profess to believe in paranormal phenomena, despite a lack of evidence in support of such things. Halpern attributes such failures not to the inability to reason well but to simple “bugs” in reasoning. She argues that human beings are programmed to look for patterns, particularly in the form of cause-and-effect relationships, even when none exist. Van Gelder (2005) echoes this sentiment, characterizing humans as “pattern-seekers and story-tellers” (p. 42). This inclination results in a tendency to jump to the first explanation that makes intuitive sense without carefully scrutinizing alternative possibilities, a phenomenon that Perkins, Allen, & Hafner (1983) have termed “makes-sense

epistemology” (p. 286). Moreover, the general public often finds “personal experience” to be more compelling evidence than a carefully conducted, scientific study. Given these natural tendencies toward deficient reasoning, Halpern warns that we should not expect to see dramatic improvements in critical thinking over time as a result of instructional interventions. Improvements in critical thinking, when they do occur, are slow and incremental (Halpern, 1998).

One reason for this gap in basic reasoning skills may be deficient educational experiences. Paul (1992) argues that typical school instruction does not encourage the development of higher-order thinking skills like critical thinking. Paul explains that knowledge is coterminous with thinking, especially good or critical thinking. However, typical school instruction, with its emphasis on the coverage of content, is designed as though recall were equivalent to knowledge. This type of lower-order learning is simply learning by rote or association, with the end result that students memorize material without understanding the logic of it. Students tend not to recognize that their assertions, beliefs, and statements have implications, and thus require evidence to support them. For most students, believing, not thinking, is knowing (Paul, 1992).

Despite evidence suggesting that the average person struggles to think critically, many researchers are sanguine about the capacity of humans to become critical

thinkers with appropriate instruction. Kennedy et al. (1991) point out that empirical research suggests that students of all intellectual ability levels can benefit from critical thinking instruction. Similarly, Lewis and Smith (1993) argue that critical thinking skills are for everyone, not just the gifted.

2.24.2 Critical Thinking in Children

Early research in the Piagetian tradition tended to view the cognitive processes of young children as being deficient in relation to those of older individuals. Many following this tradition interpret Piaget's stages of development to mean that young children are incapable of formal operations (abstract reasoning), which are required for critical thought (e.g., see summary in Kennedy et al., 1991). However, more recent research has found that young children engage in many of the same cognitive processes that adults do, concluding that there is a place for critical thinking in the lower elementary curriculum (see, e.g., Gelman & Markman, 1986). Silva (2008) argues that there is no single age when children are developmentally ready to learn more complex ways of thinking. Furthermore, Willingham (2007) indicates that very young children have been observed thinking critically, whereas trained scientists occasionally fall prey to errors in reasoning. Kennedy, et al. (1991) surveyed the research literature and concluded that, although critical thinking ability appears to improve with age, even young children can benefit from critical thinking instruction. The

authors speculate that many of the earlier gloomy conclusions, vis-à-vis the limited critical thinking skills of young children, were spurious—due to a lack of relevant background or content knowledge needed to engage in a task.

Bailin et al. (1999) argue that critical thinking instruction at the primary grade levels can include teaching students to value reason and truth; respect others during discussion; be open-minded; be willing to see things from another's perspective; perceive the difference between definitions and empirical statements; use cognitive strategies, such as asking for examples when something is unclear; and use principles of critical thinking, such as considering alternatives before making a decision. Similarly, the APA Delphi report recommends that "from early childhood, people should be taught, for example, to reason, to seek relevant facts, to consider options, and to understand the views of others" (Facione, 1990, p. 27). Moreover, the report maintains that explicit instruction dedicated to critical thinking skills, abilities, and dispositions should be built into all levels of the K–12 curriculum, rather than being limited to junior high or high school students.

Empirical evidence supports the notion that young children are capable of thinking critically. For example, Koenig and Harris (2005) have demonstrated that 3- and 4-year-old children will differentiate the credibility of various sources of information. In particular, 4-year-old

children appeared to prefer the judgments of adult participants who had a history of being correct over those who were purposefully inaccurate. This finding was replicated in a number of other studies (e.g., Jaswal & Neely, 2006). Similarly, Lutz and Keil (2002) found that children as young as 4 years appeared to be aware that different people may possess differing domains of expertise and that these areas of expertise might be related to their credibility on certain topics. For example, a car mechanic's diagnosis of car trouble was found to be more credible than a doctor's. Finally, Heyman and Legare (2005) found that children between the ages of 7 and 10 became increasingly aware that people may have motives to distort the truth, whereas children younger than this were not consistently critical of the credibility of people with such motives.

2.24.3 Critical Thinking Over Time

Little is known about the development of critical thinking skills and dispositions over time. The APA, for example, has specifically cautioned that its framework for critical thinking should not be interpreted as implying any kind of developmental progression or hierarchical taxonomy (Facione, 1990). A few empirical studies have investigated the evolution of critical thinking skills and abilities as students proceed through college. O'Hare and McGuinness (2009) found that the critical thinking scores of third-year university students in Ireland were significantly higher than the corresponding scores of first-

year students. The authors speculated that attending university exerts an independent effect on the development of critical thinking. In a meta-analysis of eight studies from 1991 to 2000, Gellin (2003) concluded that college students who engaged in activities such as interacting with faculty and peers, living on campus, and participating in college clubs or organizations increased their measured critical thinking skills by 0.14 standard deviations as compared to college students who did not participate in such activities. One of the only researchers to postulate a developmental progression of critical thinking skills and abilities is Kuhn (1999), who synthesized a wealth of empirical research on cognitive development to construct such a progression. Kuhn's definition of critical thinking draws from the literature on metacognition, which she views as being related to critical thinking. She distinguishes three forms of metacognition, which represent successively more sophisticated ways of thinking. Metacognitive understanding is thinking that operates on declarative knowledge. In other words, it is concerned with cataloging what an individual knows and how that individual comes to know it. Meta-strategic knowing is thinking that operates on procedural knowledge. Thus, this type of cognition is concerned with monitoring and evaluating strategy use, as well as answering questions such as, "Am I making progress?" and "Is this strategy working?" Finally, epistemological

understanding is concerned with philosophical questions, such as, “How does anyone know anything?”

According to Kuhn’s (1999) theoretical framework, metacognitive knowing characterizes the first stirrings of critical thought in very young children. There are two distinct stages within metacognitive knowing. The first stage is called Realism and is typically achieved between the ages of 3 and 5. This stage is characterized by the belief that assertions are expressions of someone’s belief, and as such, may depart from reality. Thus, the child is able to identify true and false statements. Prior to reaching this stage, children regard beliefs and assertions as isomorphic with reality. “In other words, the world is a simple one in which things happen and we can tell about them. There are no inaccurate renderings of events” (p. 19). According to Kuhn’s framework (1999), the second stage of metacognitive knowing, typically achieved by 6 years of age, allows the child to be aware of sources of knowledge and further, to distinguish between theory and evidence. In other words, prior to reaching this second stage, the child has difficulty distinguishing evidence for the claim that an event has occurred from the causal theory that makes occurrence of the event plausible. In other words, is something true because it makes intuitive sense or because there is empirical evidence for it? Kuhn describes a study (Kuhn & Pearsall, 1998) in which children were shown a series of pictures depicting two runners competing in a race. The last picture shows one of

the runners holding up a trophy and smiling. When children were asked who won the race, most children correctly indicated that the runner represented in the final photo was the winner. However, when asked to justify this claim, younger children tended to cite causal theories (“because he is wearing fast shoes”) rather than evidence in support of the claim (“because he is holding a trophy”). According to Kuhn, by the second stage of metacognitive knowing children are able to make this distinction.

Based on the empirical research in meta-memory, Kuhn’s framework (1999) also portrays meta-strategic knowing in two stages. According to Kuhn, during the first stage, typically achieved during middle childhood, children begin to understand the value of cognitive strategies in aiding cognition. A child who has reached this stage recognizes that a memory strategy such as categorization will aid recall and tends to effectively manage and deploy cognitive resources during problem solving (Kuhn, 1999). The second stage of meta-strategic knowing may not be achieved at all. If it is attained, it is typically reached during adolescence and adulthood. According to Kuhn, this stage is characterized by consistent and appropriate strategy selection from a repertoire of available strategies. Thus, the individual monitors strategy use, evaluates the success of strategies, and moderates use of such strategies accordingly. Individuals at this stage also tend to justify their knowledge claims (Kuhn, 1999).

Finally, Kuhn's framework (1999) posits epistemological understanding as the most sophisticated level of critical thought. According to Kuhn, this level is characterized by three distinct stages. The first stage, called the Absolutist position, is the norm during childhood and is common during adolescence, and can even persist into adulthood for some individuals. People who have reached this stage believe that absolute truth is either "known or potentially knowable, either through direct apprehension or the opinion of experts" (Kuhn, 1999, p. 22). All belief states can be evaluated in relation to this objective truth. In other words, all disagreements are ultimately resolvable. According to Kuhn (1999), the second stage in epistemological understanding, labeled the Multiplist Epistemological position, tends to be prevalent during adolescence. During this stage, the individual acknowledges that experts can disagree and actually relinquishes the idea of certainty. A person in this stage moves to the opposite end of the subjectivity-objectivity continuum, vis-à-vis those in the Absolutist stance. Instead of viewing the world as inherently and objectively knowable, individuals in this stage perceive the world as a completely subjective place. In other words, "because all people have a right to their opinions, all opinions are equally right" (p. 22). Kuhn points out that many people become permanently stuck in this phase.

Finally, Kuhn (1999) argues that the last stage in epistemological understanding (and critical thinking), to

which only a minority of people will ever progress, is known as Epistemological Metaknowing. According to Kuhn's framework (1999), at this stage the individual is able to balance the subjective and objective, recognizing a multiplicity of valid representations of reality. This person uses judgment, evaluation, and argumentation to sift through opinions and arrive at those that are most valid. Not all opinions are valued equally; rather, reason, logic, and empirical evidence can be used to privilege certain positions over others (Kuhn, 1999).

2.25 Instructional Implications

This section explores the teachability of critical thinking, as well as the instructional implications of the empirical literature on critical thinking skills. Specific instructional recommendations for fostering the development of critical thinking will be summarized, as well.

2.25.1The Teachability of Critical Thinking

Fortunately, many critical thinking researchers maintain that critical thinking skills and abilities can be taught. Halpern (1998) offers evidence of two instructional programs aimed at improving the critical thinking skills and abilities of college students. In one study, students who were taught general problem-solving skills improved on Piagetian-inspired measures of cognitive development. In the other study, college students instructed in a specific type of problem-solving strategy produced mental math

representations that were more like those of experts than of novices. In their review of the literature, Kennedy et al. (1991) concluded that instructional interventions aimed at improving students' critical thinking skills have generally shown positive results.

In a meta-analysis of 117 empirical studies examining the impact of instructional interventions on students' critical thinking skills and dispositions, Abrami et al. (2008) found that these interventions, in general, have a positive impact, with a mean effect size of 0.34. However, the distribution of effect sizes was highly homogeneous, with effect sizes varying dramatically by type of intervention and sample characteristics. For example, effect sizes for students in K–12 settings were higher than those observed among undergraduates.

2.25.2 Domain Specificity

The debate about domain specificity has implications for critical thinking instruction. Ennis (1989) described four instructional approaches that vary in terms of the extent to which critical thinking skills are taught as a stand-alone course versus integrated into regular instruction. The general approach entails direct and explicit instruction in critical thinking skills as a separate course, where critical thinking skills and abilities are emphasized outside the context of specific subject matter. Typically, some content is involved to contextualize examples and tasks. However, the content is not related to discipline-specific knowledge, but tends to be drawn from problems that students are

likely to encounter in their daily lives. Van Gelder (2005) appears to advocate for the general approach to critical thinking instruction.

Drawing from the literature on expertise, Van Gelder argues that students need “deliberate practice” in exercising critical thinking skills and abilities. This type of practice can only occur when critical thinking is taught as a separate and explicit part of the curriculum. However, students must be taught to transfer critical thinking to a variety of contexts by providing them opportunities to practice applying critical thinking skills in diverse contexts. Similarly, Halpern (2001, p. 278) argues that instruction in general thinking skills, taught as a “broad-based, cross-disciplinary” course, is the most effective way of teaching critical thinking. The infusion approach entails in-depth instruction in the subject matter plus explicit instruction on general critical thinking principles. This critical thinking instruction is provided in the context of specific subject matter. Ennis (1989) indicates that this approach is commonly seen in the “across the curriculum” movements. Somewhat related to the infusion approach is immersion. In immersion instruction, students are engaged in deep subject-matter instruction. Although critical thinking skills and abilities are part of the content to be learned, critical thinking instruction is not made explicit. In other words, critical thinking skills and abilities are not the focus of direct and explicit instruction. Rather, students are expected to acquire these skills as a natural

consequence of engaging with the subject matter (Ennis, 1989). Proponents of the infusion and immersion approaches appear to include both Bailin et al. (1999), who vigorously defend the domain specificity of critical thinking, and Lipman (1988), who views critical thinking skills as being somewhat general but who argues, nonetheless, that instruction in critical thinking must go hand-in-hand with instruction in basic skills, such as reading, writing, listening, and speaking. Silva (2008) echoes this viewpoint, maintaining that knowledge and thinking have to be taught simultaneously. Likewise, Case (2005) argues that critical thinking is a lens through which to teach the content and skills embedded in the curriculum; and Pithers and Soden (2000) reject the view that critical thinking could be taught as a separate subject. Rather, critical thinking should be viewed as a way of teaching and learning in any domain. Finally, the mixed approach combines elements of both the general and subject-specific approaches. Teachers pair stand-alone instruction in general critical thinking principles with application of critical thinking skills in the context of specific subject matter. Explicit instruction in critical thinking skills can be incorporated into both the general and the specific components (Ennis, 1989). Facione (1990) appears to advocate for this approach when he notes that critical thinking can be taught in the context of domain-specific content, or content drawn from “events in everyday life” (p. 10). Paul (1992) recommends basic

critical thinking skills courses, as well as including critical thinking within discipline-specific courses. Kennedy et al. (1991), after reviewing extant research on the various approaches, conclude that the evidence does not support the superiority of any particular approach. Accordingly, they recommend using the mixed approach. In their meta-analysis of 117 empirical studies on the effects of instructional interventions on students' critical thinking skills and dispositions, Abrami et al. (2008) found that a substantial amount of the variation in effect sizes across studies was driven by pedagogical grounding and by type of intervention. In other words, when instructional approach was categorized as general, immersion, infusion, or mixed, the mixed approach had the largest effect-sizes and the immersion approach had the smallest. This finding suggests that educators should approach critical thinking instruction both by integrating critical thinking into regular academic content and,by teaching general critical thinking skills as a stand-alone component. This finding reinforces the importance of providing explicit instruction in critical thinking rather than simply viewing critical thinking as an implicit goal of a course. The authors also found that interventions in which educators received special training in teaching critical thinking had the largest effect-sizes, compared to studies in which course curricula were simply aligned to critical thinking standards or critical thinking was simply included as an instructional objective. Thus, successful interventions may require professional

development for teachers specifically focused on teaching critical thinking (Abrami et al., 2008).

2.25.3 Teaching for Transfer:

As noted before, researchers disagree on the extent to which critical thinking skills learned in one context are transferrable to new contexts, domains, and disciplines. Most researchers tend to agree, however, that transfer is unlikely to occur unless students are taught specifically to transfer. What does this mean from an instructional standpoint? First, students must be given opportunities to apply critical thinking skills and abilities in a wide range of contexts and subject areas. Second, instruction should emphasize executive functioning or metacognitive skills, such as setting goals, planning, and monitoring progress toward goals (Kennedy et al., 1991). Third, students should be sensitized to deep problem structure, because most students' thinking tends to focus on the surface structure of problems, or the superficial aspects of tasks (Halpern, 1998; Willingham, 2007). Hummel and Holyoak define structure sensitivity as the ability to "code and manipulate relational knowledge" (as cited in Halpern, 1998, p. 453). The goal of structure training is to enable students to recognize a particular problem structure whenever they see it whether it appears in math, science,

or social studies so that they may deploy appropriate strategies. Structure training involves distributing practice in a variety of contexts and settings. Halpern points out that use of “authentic” or real-world learning activities helps to promote the transfer of critical thinking skills. Brown (1990) argues that domain-specific knowledge may also be necessary for young children to successfully transfer skills to new problems that display the same deep structure. She observes, “We conclude that even young children show insightful learning and transfer on the basis of deep structural principles, rather than mere reliance on salient perceptual features, when they have access to the requisite domain-specific knowledge to mediate that learning” (p. 130). Thus, teaching for transfer may also entail providing adequate instruction on relevant background information.

2.26 Specific Instructional Strategies

A number of researchers have recommended using particular instructional strategies to encourage the development of critical thinking skills and abilities, such as explicit instruction, collaborative or cooperative learning, modeling, and constructivist techniques. For example, many researchers have noted that critical thinking skills and abilities are unlikely to develop in the absence of explicit instruction (Abrami et al., 2008; Case, 2005; Facione, 1990; Halpern, 1998; Paul, 1992). Facione points out that this explicit instruction should also attend to the dispositional or affective component of critical thinking.

Another method recommended by several critical thinking researchers is a collaborative or cooperative approach to instruction (Abrami et al., 2008; Bailin et al., 1991; Bonk & Smith, 1998; Heyman, 2008; Nelson, 1994; Paul, 1992; Thayer-Bacon, 2000). This recommendation appears to be rooted in Piagetian and Vygotskyian traditions that emphasize the value of social interactions for promoting cognitive development (as summarized in Dillenbourg et al., 1996). Piaget touted the instructional value of cognitive conflict for catalyzing growth, typically achieved by interacting with another person at a higher developmental stage. Along similar lines, Vygotsky identified the zone of proximal development as the distance between what an individual can accomplish alone and what he/she can accomplish with the help of a more capable other (either a peer or an adult). Each of these approaches highlights the potential for cognitive improvement when students interact with one another (as summarized in Dillenbourg et al., 1996).

Proponents of collaborative or cooperative learning include Thayer-Bacon (2000), who emphasizes the importance of students' relationships with others in developing critical thinking skills. Supporters also include Bailin et al. (1999), who argue that critical thinking involves the ability to respond constructively to others during group discussion, which implies interacting in pro-social ways by encouraging and respecting the contributions of others. Similarly, Heyman (2008) indicates

that social experiences can shape children's reasoning about the credibility of claims. In their meta-analysis of 117 empirical studies on the effects of instructional interventions for improving students' critical thinking skills and dispositions, Abrami et al. (2008) found a small but positive and significant effect of collaborative learning approaches on critical thinking. Nelson (1994) provides some clues as to how collaboration can prompt cognitive development among college students. According to Nelson, students' misconceptions interfere with their ability to acquire new knowledge, despite appropriate instruction. Collaborations create opportunities for disagreements and misconceptions to surface and to be corrected. Collaboration also provides a vehicle for students to attain necessary acculturation to the college learning environment and helps to make tacit disciplinary expectations more explicit for students. Nelson (1994) points out that collaboration must be scaffolded, arguing that this scaffolding process has three stages. First, students must be prepared for collaboration by providing them with a common background on which to collaborate, such as common assigned readings. Second, student groups should be provided with questions or analytical frameworks that are more sophisticated than they would tend to use on their own. Finally, collaborative activities should be structured by specifying student roles and by creating incentives for all group members to actively participate. Bonk and Smith (1998) identify a number of

classroom activities that build on the potential for collaboration to enhance learning. These activities include think-pair-share, round-robin discussions, student interviews, roundtables, gallery walks, and “jigsawing.”

In addition to explicit instruction and collaboration, several other strategies have been identified as helpful in promoting critical thinking. For example, teachers are urged to use constructivist learning methods, characterized as more student-centered than teacher-centered (Bonk & Smith, 1998; Paul, 1992). Constructivist instruction is less structured than traditional instruction, amplifying students’ roles in their own learning and de-emphasizing the role of the teacher. Educators should model critical thinking in their own instruction by making their reasoning visible to students. This could be accomplished by “thinking aloud” so that students can observe the teacher using evidence and logic to support arguments and assertions (Facione, 2000; Paul, 1992). Educators are also urged to use concrete examples that will be salient to students to illustrate abstract concepts like “conflict of interest” (Heyman, 2008; Paul, 1992). For example, Heyman found that children were more likely to be skeptical of another child’s claim of illness when they learned that the child did not want to attend camp that day. Examples that rely upon common experiences are more likely to be intuitively obvious to students. Specific classroom learning activities believed to promote critical thinking include the creation of graphic organizers, such

as concept maps and argument diagrams (Bonk & Smith, 1998; Van Gelder, 2005); KWL charts, which require students to identify what they already know about a topic, what they want to know, and what they have learned upon completing instruction; “in a nutshell” writings, which entail summaries of arguments; exit slips, which identify the most important thing learned and the areas of needed clarity; problem-based learning, particularly the use of ill-structured problem contexts; and mock trials (Bonk & Smith, 1998).

2.27Assessment Implications of critical Thinking:

This section reviews challenges in assessing critical thinking and identifies specific recommendations from the literature for measuring critical thinking.

2.27.1Challenges in Assessing Critical Thinking

There are a number of challenges in assessing critical thinking skills and dispositions in students. Researchers have pointed out problems associated with both reliability and validity of existing measures. For example, Moss and Koziol (1991) factor analyzed scores from a set of writing tasks intended to measure the critical thinking skills of students in grades 5, 8, and 11 in the context of social studies. Students who read a social studies passage either supported an inference with argumentation or evaluated an argument from the passage. The authors found no

clear, common factor underlying performance across tasks that were designed to be parallel. Furthermore, students' abilities to use topic statements, evidence, explanations, conclusions, and logical organization did not generalize across tasks, suggesting that idiosyncratic and perhaps construct-irrelevant features of each passage or task were more salient aspects of student performance than any general ability to think critically. Silva (2008) has noted that performance-based assessments of creativity introduce, rather, subjectivity and error. Moreover, use of such performance tasks to assess the growth of critical thinking skills over time remains fraught with difficulties as long as individual tasks communicate more noise than signal (Moss & Koziol, 1991).

Norris (1989) argues that the fact that the degree of domain specificity in critical thinking remains unresolved makes assessment of critical thinking difficult. First, the type of inferences one is trying to make remains unclear to the extent that researchers cannot agree whether critical thinking is general or subject-specific. Second, it is difficult to assess critical thinking transfer, because transfer to other contexts is confounded with subject-specific knowledge that is necessary for exercising critical thinking. Thus, a student who fails to transfer to another subject either requires additional instruction in critical thinking or additional instruction in the subject matter. Similarly, the disposition to think critically is confounded with the ability to do so. Thus, despite the fact that

researchers have identified critical thinking skills and dispositions as distinct from one another, delineating their separate effects using an assessment is difficult in practice. Finally, Norris argues that traditional assessment formats are ill-suited for testing even limited aspects of the construct. Standardized instruments using multiple-choice formats to assess credibility judgment or deductive reasoning are as likely to reflect extraneous constructs such as test-makers' empirical, religious, or political beliefs and judgments as they are to reflect critical thinking.

Existing published assessments of critical thinking are numerous, and include the California Critical Thinking Skills Test (Facione, 1990), the Cornell Critical Thinking Tests (Ennis & Millman, 2005), the Ennis-Weir Critical Thinking Essay Test (Ennis & Weir, 1985), and the Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1980). As Ku (2009) points out, these instruments vary widely in both purpose and item format. However, as Kennedy et al. (1991) note, none of these tests are intended for use with students below the fourth-grade level. Moreover, these assessments tend to be general critical thinking assessments rather than subject-specific.

2.27.2Assessment Recommendations

Researchers have made several suggestions for designing assessments ideally suited to assess critical thinking skills. First, open-ended problem types may be more appropriate for assessing critical thinking than

traditional multiple-choice formats. As Ku (2009) argues, available empirical evidence suggests that open-ended measures better capture the construct of critical thinking because they are more sensitive to the dispositional aspects of critical thinking than are multiple-choice measures. For this reason, Ku recommends using tests of mixed item format, both multiple-choice and open-ended, to more completely represent both the cognitive and dispositional aspects of critical thinking.

As Ku (2009) argues, “teachers should adopt different assessment methods, such as exercises that allow students to self-construct answers, assignments that facilitate the practice of strategic use of thinking skills in everyday contexts, and when adopting multiple-choice exercises, follow-up questions should be given to probe students’ underlying reasoning” (p. 75). Assessment tasks should also reflect “authentic” problem contexts and performances (Bonk & Smith, 1998; Halpern, 1998). This means that assessments should be based on simulations that approximate real-world problems and issues. Assessments should also use ill-structured problems, which Moss and Koziol (1991) explain to mean that test questions should require students to go beyond the available information in the task to draw inferences or make evaluations. In addition, problems should have more than one plausible or defensible solution, and there should be sufficient information and evidence within the task to

enable students to support multiple views (Moss & Koziol, 1991).

Fischer, Spiker, and Riedel (2009) argue that critical thinking is a “stimulus-bound phenomenon,” meaning that certain external task features may impact whether critical thinking is elicited in a given assessment context. The authors identify a number of context variables that affect one’s use of critical thinking. For example, stimulus characteristics focus on whether the stimuli present a set of materials that is orderly, well-organized, and coherent, or a set of materials that is uncertain, ambiguous, disorganized, and contradictory. In experimental studies that attempted to validate their model of critical thinking, Fischer et al. (2009) demonstrated that some contextual stimulus variables do seem to matter, whereas others do not. For example, the level of substance of stimulus text in terms of the number of unique propositions contained in that text had no main effect on the subjects’ propensity to use critical thinking, operationalized in this study as the number of questions of belief and checks on thinking observed during “think-aloud” procedures. However, the level of consistency, or lack of contradictions, within stimulus materials did have a main effect, with inconsistent or contradictory materials more likely to prompt critical thinking than consistent and coherent stimulus materials.

Moreover, Fischer et al. (2009) demonstrated that certain types of tasks are more likely to elicit critical

thinking than others. For example, tasks requiring the exercise of judgment were better for assessing critical thinking than tasks focused on simply understanding material presented in stimulus text. In particular, a task requiring examinees to either accept or reject a manuscript for publication elicited more questions of belief and checks on thinking than a task asking examinees to identify the main topic of a set of materials or to explain a scientific study described in stimulus materials.

Moss and Koziol (1991) advocate for evaluating students on the basis of the quality of the arguments underlying their position, rather than the “correctness” of the answer. Lewis and Smith (1993) point out that assessment tasks must go beyond requiring simple recall of learned information. Rather, tasks should require students to manipulate what they learned in new or novel contexts. Another suggestion is that critical thinking assessments should make student reasoning visible. For example, Norris (1989) argues that testing validly for critical thinking requires that we observe an examinee’s process of thinking. One recommendation for accomplishing this in the context of a multiple-choice test is to require students to provide a rationale or justification for their choice, an idea that was repeated by Kennedy et al. (1991).

Silva (2008) argued that new assessment modes are needed to measure higher-order skills, identifying several

examples of recent critical thinking assessments that use novel item formats.

For example, the College and Work Readiness Assessment (developed by the Council for Aid and the RAND Corporation) presents students with a 90-minute task and access to a variety of written materials on the topic, which typically represents a real-world problem. Students are then asked to make judgments and formulate a solution. River City Research Project (developed within Harvard’s graduate school of education with National Science Foundation funding) is an assessment and instruction program that uses an interactive, virtual environment to present middle-school students with simulated, real-world problems that they must solve through the application of the scientific process: generating hypotheses, testing hypotheses, analyzing results, and drawing inferences and conclusions. Finally, Power Source—developed by researchers at the National Center for Research on Evaluation, Standards & Student Testing (CRESST)—is a middle-school math assessment that combines higher-order thinking skills with mastery of basic math content in the form of narrative themes or graphic novels. Students are asked to apply math principles and to explain their reasoning.

2.28 Role of Argumentative Essay Writing in Developing English as a foreign language Learners' Critical Thinking:

1-It develops students' mental abilities

2-It enriches students' cognitive growth

3. It improves students' ability a solid and meaningful essays

4. It develops EFL students' not only academic writing but also as citizens.

2.29 Review of Previous Studies:

Mamour Keuk (2010) reviewed the literature on Developing Critical Thinking skills Through Interactive Teaching Of Reading and Writing in the L2 Writing Classroom, the question was: Can critical thinking and argumentative writing be taught in the ESL context?, research findings from quantitative and qualitative method are the majority of participants had no clear concept of critical thinking skills before the intervention. Critical thinking, as revealed in the data, is not treated as an essential educational goal in the Sudan education system. The system explicitly or implicitly encourages rote learning and the memorization of facts as a suitable method for learning.

Jennifer H. (1998) surveyed views on Effect of a Model for Critical Thinking on Student Achievement in Primary Source Document analysis and interpretation, Argumentative Reasoning, Critical thinking Disposition and History content in A community College History Course.

The question was: Will a group of community college

history students who receive training in Paul's model for critical thinking differ in their attitudes and dispositions toward critical thinking from a group of similar students not receiving explicit instruction in critical thinking? Research findings from mixed method were represented in interview and test are Results from interviews with nine students were also presented and indicated that some students in the experimental group found using Paul's model somewhat difficult at first. Experimental group students were better at providing a definition of critical thinking, and they were able to think of more uses for their skills in the real world than students in the control group.

Judy.Dreeszen (2009) conducted a research on the impact of Differentiation On The Critical Thinking Of Gifted Readers and The Evolving perspective Of The Fifth Grade Classroom Teacher; the question was How does a differentiated reading program influence the level of critical thinking of gifted readers through their written response in response journals? The research findings was from a qualitative research method was Prior to reading the selected novels, background information was provided to the readers in order to provide them with an understanding of the issues involved in each of the literature selections. This background knowledge was an essential base from which the readers could begin constructing their own unique meaning.

Lauren G.Ruff(2005)The Development of Critical Thinking Skills and Disposition in First-Year College

Students: infusing Critical Thinking Instruction Into A first Year Transition Course.under the question Do students who participate in a transitions course infused with critical thinking instruction score higher on tests of critical thinking skills and dispositions than students that participate in a transitions course without critical thinking instruction? The study findings from qualitative and qualitative method were the researcher administered a questionnaire to students in both the control and experimental groups on the last day of class, after the students completed the post-tests. The questionnaire specifically asked students whether or not participation in the class increased their critical thinking skills and dispositions. As indicated by the table, an overwhelming majority of the students in the experimental group felt like they had benefited from the class. The results of the questionnaire indicate that 75% of the students in the experimental group, and 6% of the students in the control group, believed that their critical thinking skills and dispositions improved.

Susan M.Hughes (2009) A Mixed Method Study on Freshman Students' critical Writing Performance as Addressed by Postsecondary Professors. The questions were both quantitative and qualitative questions, they were What are the specific writing weaknesses' totals and percentages college professors are seeing in freshman students' writing performances? And What do college professors perceive as the skill indicators for low

performance of college freshman writing? The findings from qualitative and qualitative method were three most common assignments were critical analysis and expository essays. Results indicated that the most common were revising, documenting sources, and research skills. The focus group results show that college professors feel high school students need to be reading and writing more and that the media opportunities for young people have had, in their opinions, a somewhat negative effect on vocabulary, usage, and writing

2.30 Summary

This chapter has been concerned with the presentation of the theoretical framework of the research, reporting the relevant literature review on critical thinking and argumentative essay writing, what are the elements of critical thinking, strategies of argumentative essay writing that can improve EFL Learners' critical thinking.

Chapter Three

Research Methodology

Chapter Three

Methodology

3.0 Introduction

This chapter describes the research methodology applied in this study; it includes data collection methods, the data collection instruments, the research population, the participants used in this study and data analysis methods.

3.1 Research Methodology

In this study, the researcher uses descriptive analytical and experimental Method of the research (Mixed Method), questionnaire and test to collect the data.

3.3.1The Questionnaire:

The questionnaire consisted into two parts representing two hypotheses, each hypothesis consists of eight statements. It is organized according to hypothesis, the first question about the elements of critical thinking and how it developed through argumentative essay. The second hypothesis is about argumentative essay strategies and to what extent it can enhance EFL Learners critical thinking skills.

3.3.2 The test:

The test consists of three questions that is argumentative essay writing, the students were free to choose the topic they were intended to write about. During the semester the input sessions the researcher has

adopted continuous assessment and students works portofolios. Regarding the experimental group each student has been trained to develop the same essay that he/she wrote about it in the pre-test, as for controlled group has been taught traditionally. The number of the students were forty students(whole class) and the researcher divided them in two groups 20 students for experimental group and 20 students for controlled group.

3.2 Population and sampling

A population is a group of elements or cases, individual objects or events, that conform to specific criteria and to which we intend to generalize the results of the research (McMillan and Schumacher, 2001). In this study, fifty English language (Associate professors, Assistant professors and Lecturers' filled the questionnaire, the sample of the test are forty Students study at Sudan University of Science and Technology, Third Year, Faculty of Education.

3.3 Data collection techniques

3.3.1 Questionnaire

The general purpose of questionnaire is elicit direct judgments; obtain uniform, straightforward; and easy data for analysis. Questionnaire encompasses variety of instruments in which the subject responds to written questions to elicit reactions, belief and attitudes.

The researcher constructs a set of appropriate questions and asks the subjects to answer them.

According to (McMillan and Schumacher, 2001), questionnaires can both be produced relatively rapidly and inexpensively and can easily be distributed simultaneously for many people. In this study, A survey questionnaire was used to examine the role of English teachers' to find out Teachers perception on critical thinking and how can we develop critical thinking skills though argumentative essay writing.

3.3.2 Test:

This quasi-experimental study followed a pretest-posttest design. Moreover, drawing upon Mackey and Gass(2005), the present study had a between-groups design. More specifically, since this study included an experimental group and a control group 20 students in each group.

Controlled group were taught by traditional way of writing argumentative essay while the experimental group were taught by argumentative essay strategies and how it can improve English as a foreign language learners critical thinking skills. The number of the students were forty students 28 males and 12 are females.

3.4 Pilot of Study

In order to check the validity of the questionnaire, the researcher ran a pilot study. Thirty copies of the questionnaire were distributed to some of the English language teachers from English Language Unit in some Sudanese Universities.

The teachers filled in the questionnaire and wrote down their comments, suggestions, notes and advice at the end of the questionnaire as requested by the researcher. The final version of the questionnaire consisted of two parts.

3.5 The Face and content validity of the Questionnaire and Test

In seeking of the face validity of the questionnaire, the researcher consulted some experts in the field of teaching English language such as Dr. Tag Elsir Bashoum, Dr. Muntasir Hassan Mubark and Dr. Hassan Mahil - Department of English Language - Faculty of Education – Sudan University of Science and Technology. They agreed that the tool is comprehensive, adequate, suitable as well as it is useful for the purpose of the study. In addition, they advised that some of the statements should be changed to suit Likert scale. The researcher has made some changes according to the experts' advice. Then permission was given from the supervisors and fifty copies of the questionnaire were distributed, the same has been done to the test.

3.6 Questionnaire and Test Reliability

Reliability is the degree to which an assessment tool produces stable and consistent results. Cohen, Manion and Morrison (2000) state that "for a research to be reliable it must demonstrate that if it were to be carried out on a similar group of respondents in a similar context (however defined), then similar results would be found" (p. 117).

There are many types of reliability, such as test-retest reliability, inter-rater reliability and spilt-half reliability which could be used to evaluate a tool.

The researcher tested the questionnaire reliability and found it highly reliable, as for the Test it was showed to some University lecturers and agreed up on it is components. The researcher used SPSS program to calculate the reliability of the questionnaire and the test and found the reliability which was (0.83) in Cronbach's Alpha that shows the reliability is very high.

3.7 Procedures of Data Analysis of the questionnaire and the test

The questionnaire was distributed to the subjects and they were requested to fill it in their free time. The subjects were given two days to fill in the questionnaire. After collecting the data of the study, as for the test both groups (controlled and experimental group were taught 30 hours of instruction) the researcher used the statistical analysis method in analyzing it using SPSS programme.

The researcher gave the students the test in one class, each group in a side. Regarding the pre and post tests were the same tests, same questions and the researcher asks the students to write about the same topic in both tests but the input sessions were different.

3.8 Summary

This chapter has reported the methodology of the study, the population of the study, the sample of the

study, the instruments and tools of the study, the face validity of the study, questionnaire and test reliability, questionnaire and test validity and procedures of data analysis.

Chapter Four

Presentation, Analysis, and Interpretation

Chapter Four
Presentation, Analysis and Interpretations

4.0 Introduction

This study investigates the role of argumentative essay writing on enhancing English as a Foreign Language learners critical thinking skills. The instruments used to collect the data was a questionnaire for English language teachers and a test for third year University students at Sudan University of Science and Technology. Both English language teachers and students were the subject of the study. The number of respondents were fifty English language teachers and forty students divided into two groups controlled and experimental groups each group twenty students. The questionnaire consisted of two sections and sixteen statements. The data of the research of both questionnaire and the test were analyzed by SPSS program and tabulated by the researcher.

General information 4.1

This section concerned the presentation of the general information about the questionnaire participants such as: gender, and yeas of experiences they have in teaching.

Table (4.1.1) Shows the distribution of gender:

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Male	37	74.0	74.0	74.0
	Female	13	26.0	26.0	100.0
	Total	50	100.0	100.0	

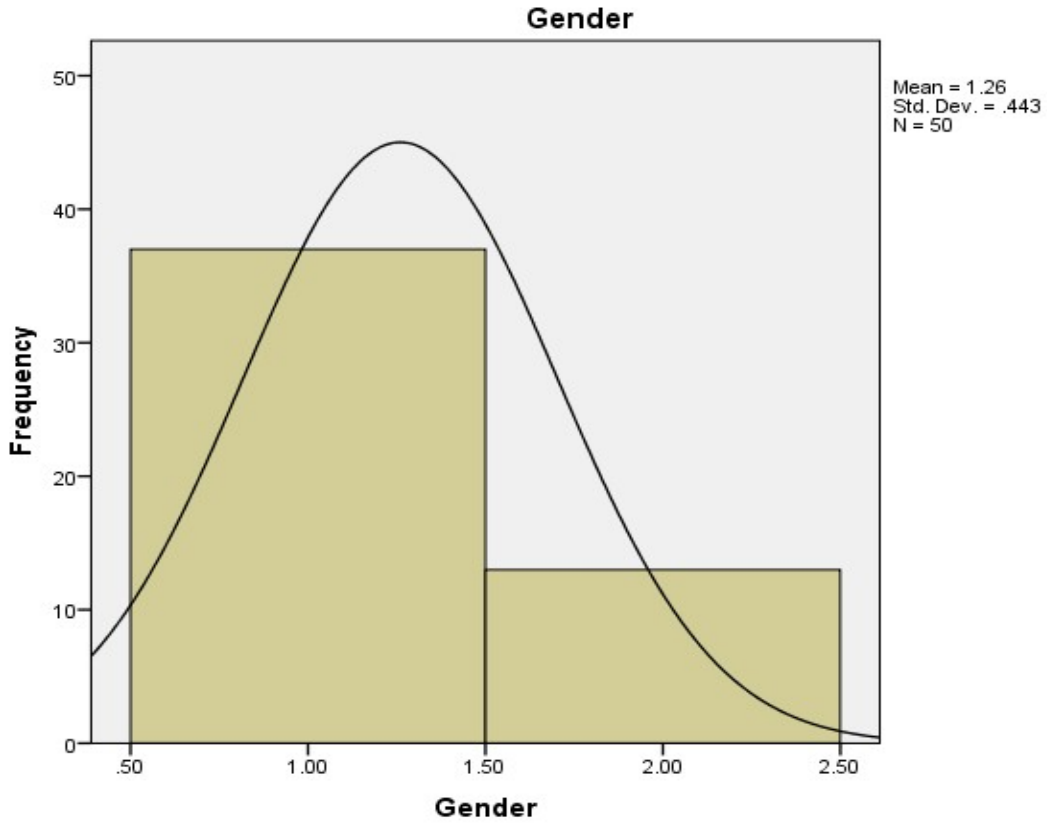


Table 4-1-1 Gender:

Table (4.1.1) represents Gender of the subjects. By having a look at the above table, about (74%) of the subjects were males, (26%) of them were females Effect of task-based learning

Table (4.1.2) Shows years of Experience:

	Frequency	Percent	Valid Percent	Cumulative Percent

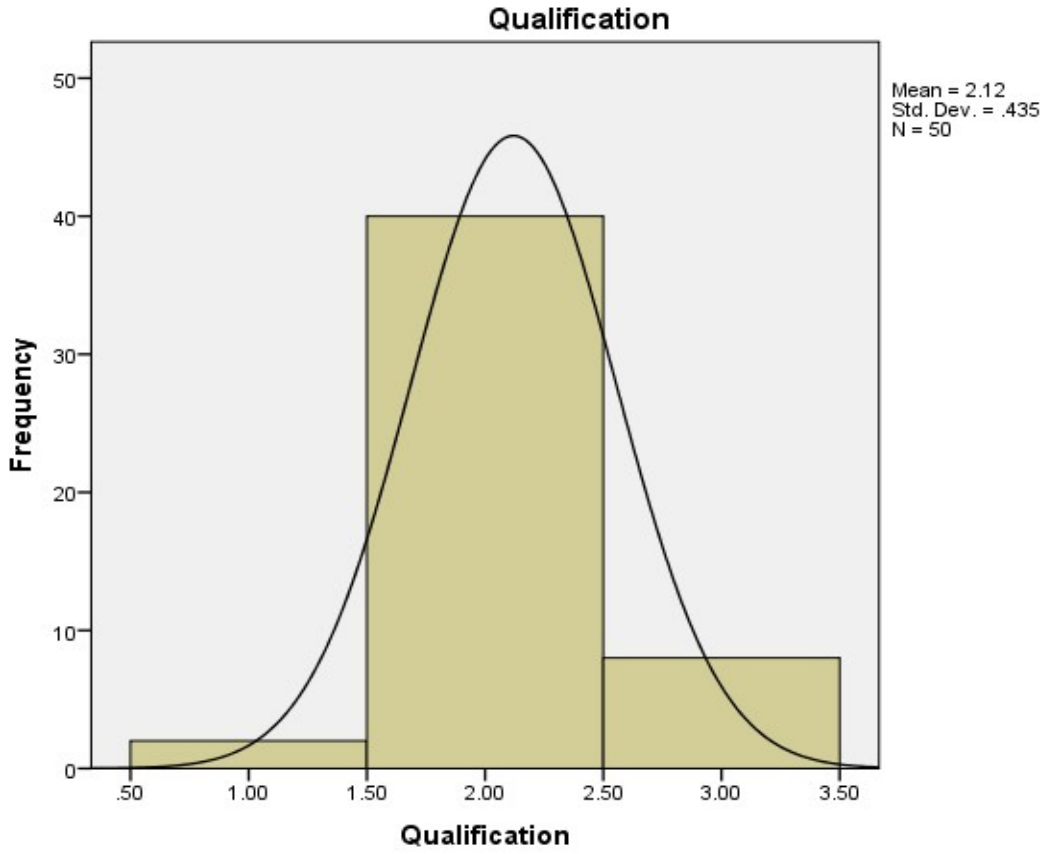
Valid	1 - 5	20	40.0	40.0	40.0
	6 -10	17	34.0	34.0	74.0
	11 - 15	7	14.0	14.0	88.0
	16 -20	2	4.0	4.0	92.0
	21 - more	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

The table above (4.1.2) below shows the subjects' years of experience. The subjects whose experiences between one to five years represent (40.0%). The subjects whose experiences between six to ten years represent (34.0%) and those whose experiences between eleven to fifteen years represent (14.0%). Those who taught English

between sixteen to twenty years are about (4.0%) and the rest have experience more than twenty years which represents (8.0%). According to figures (4.1.2), we can see about (60.0%) of the sample have teaching experience from six to more than twenty years. This is a good factor because these teachers can give reliable judgment to support the hypotheses of the research due to their long experiences in teaching English language.

Table (4.1.3) represents qualifications of the subjects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BA	2	4.0	4.0	4.0
	MA	40	80.0	80.0	84.0
	PhD	8	16.0	16.0	100.0
	Total	50	100.0	100.0	



The table above (4.1.3) represents qualifications of the subjects. By having a look at the above table, about (4.0%) of the subjects hold Bachelor degree, (80.0%) of them hold Master degree and (16.0%) of the subjects hold PHD degree. From figure (4.1.1) we can see that the majority of the subjects hold PHD and master's degree which can enable them to judge on the topic of the research.

Teachers' View Towards Critical Thinking:

Table (4.1.4) Shows teachers who unprepared to teach critical thinking:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	26	52.0	52.0	52.0
	No	24	48.0	48.0	100.0
	Total	50	100.0	100.0	

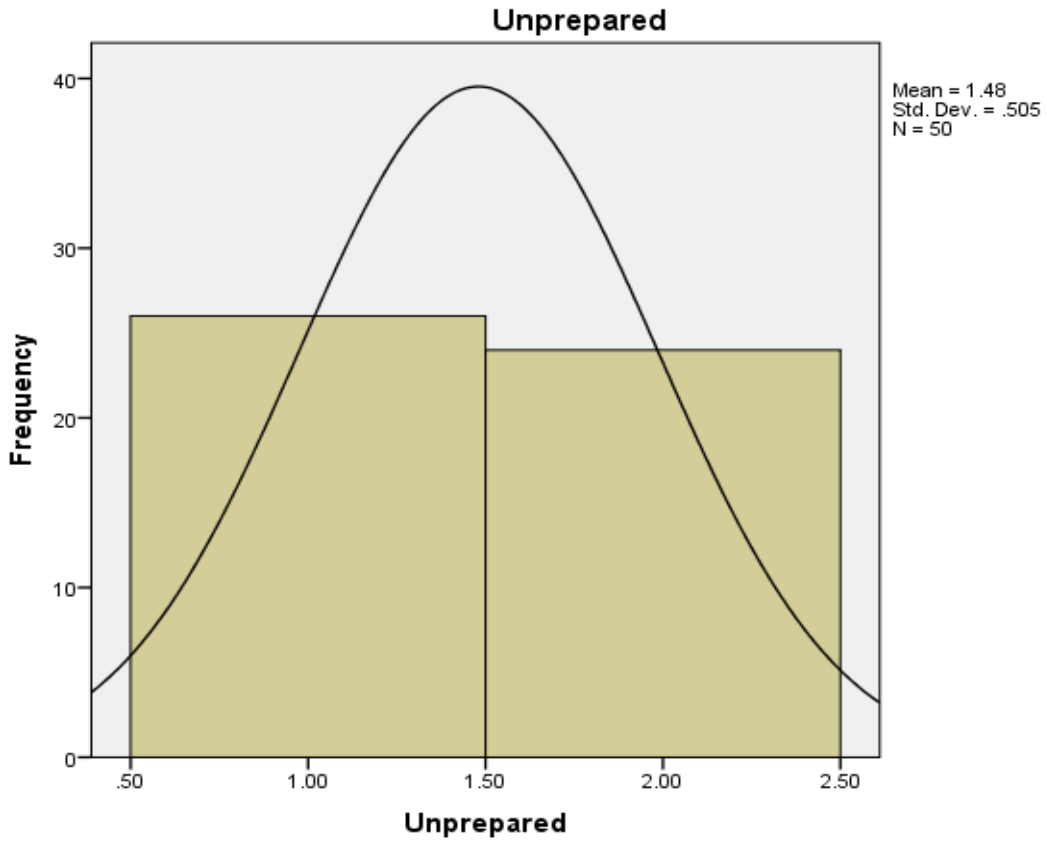


Table above (4.1.4) represents teacher's view towards critical thinking the chart reflects the majority of teachers were unprepared to teach critical thinking with 52% out of 100% that let us to prepare teachers to teach critical thinking

Table(4.1.5) Shows Teachers who once attend a preservice critical thinking workshop

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	44.0	44.0	44.0
	No	28	56.0	56.0	100.0
	Total	50	100.0	100.0	

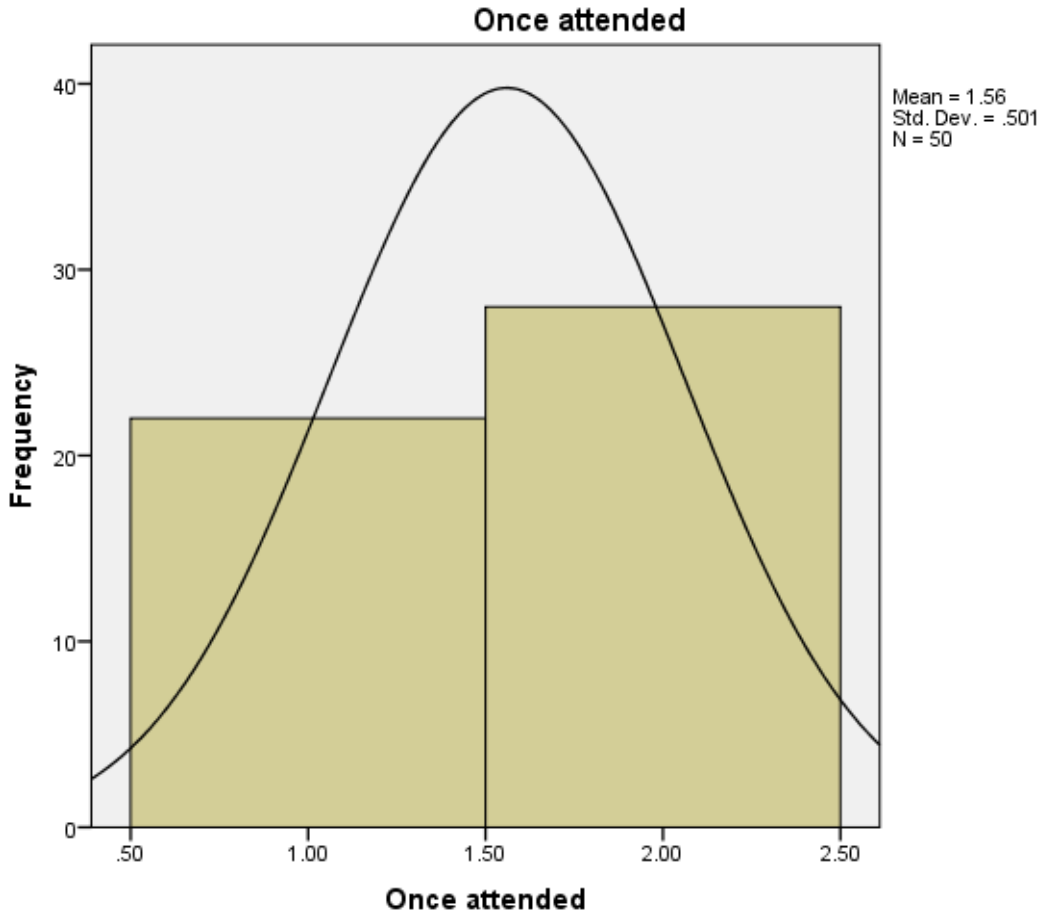
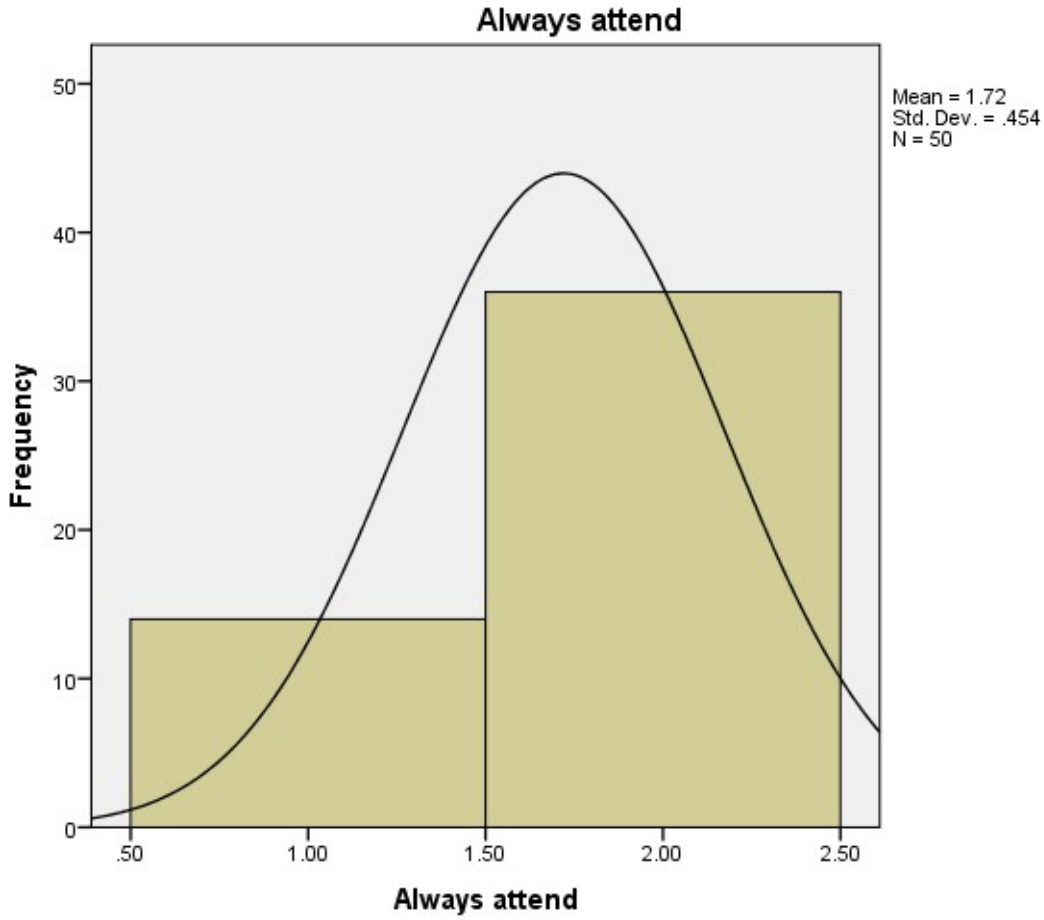


Table (4.1.5) represents teacher's view towards critical thinking the chart reflects the majority of teachers were once attend critical thinking workshop with 56% out of 100%.

Table (4.1.6) Shows Teachers who always attend in service critical Thinking sessions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	28.0	28.0	28.0
	No	36	72.0	72.0	100.0
	Total	50	100.0	100.0	



The table above(4.1.6) represents teacher's view towards critical thinking the chart reflects the majority of teachers weren't attend critical thinking workshop with 72% out of 100%.

Part Two: Analysis of Questionnaire Statements4.2.0

This part shows the analysis of questionnaire statements which is divided into two parts eight statements in each parts.

Keys:

S D means Strongly Dis agree

D means Dis agree

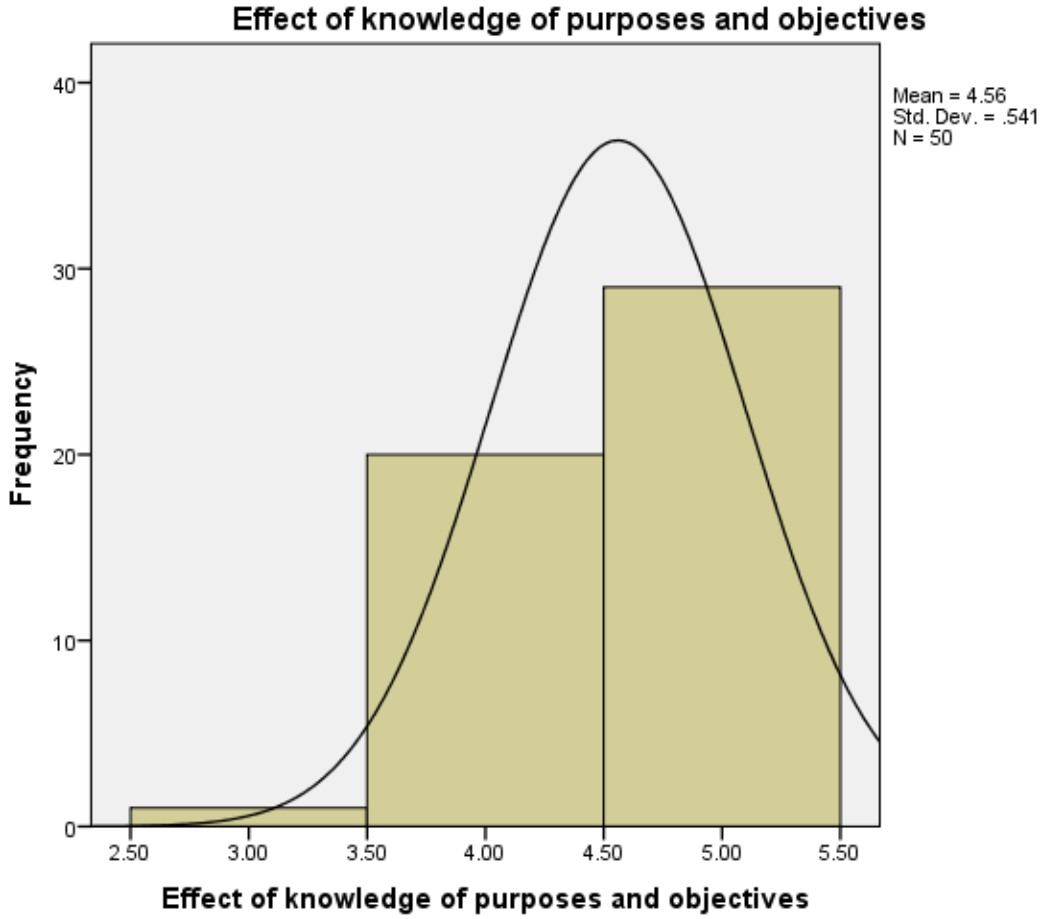
N means Not Sure

A means Agree

S A means Strongly Agree

Effect of knowledge of purposes and objectives

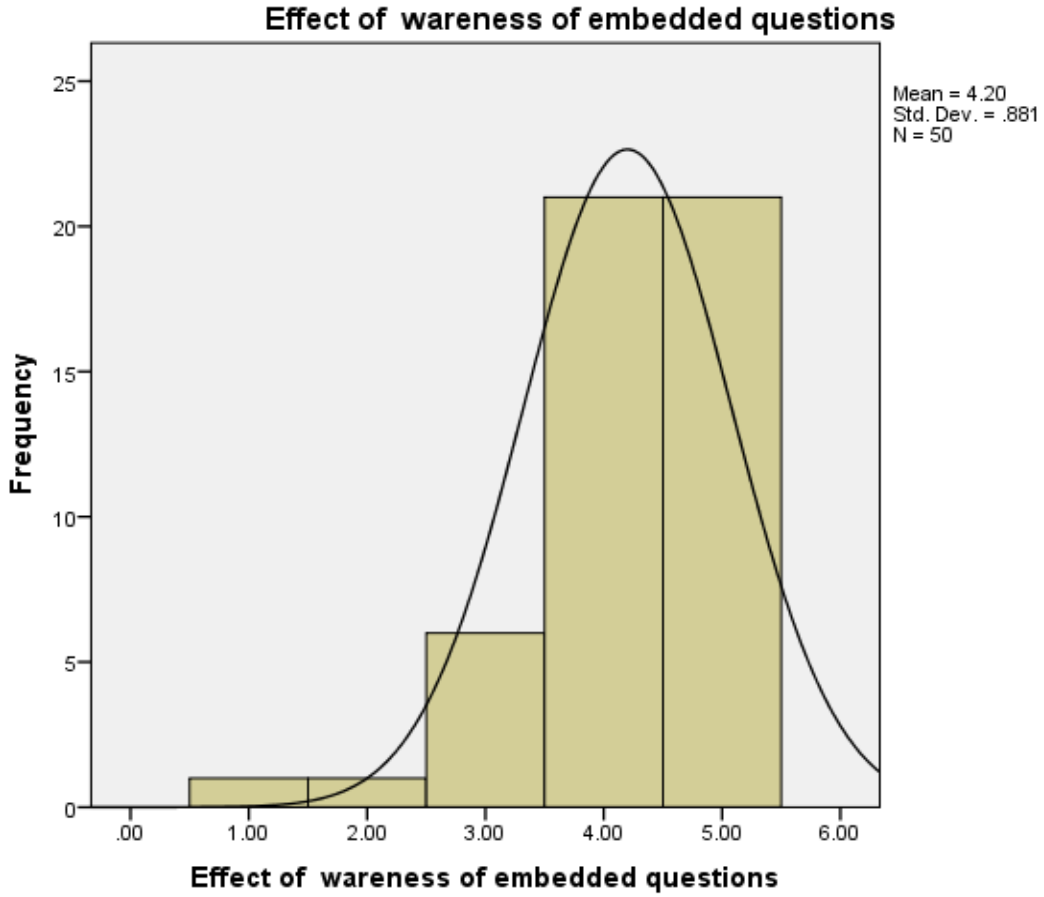
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N	1	2.0	2.0	2.0
	A	20	40.0	40.0	42.0
	SA	29	58.0	58.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-1) Almost of the sample (58%) are strongly agree that effect of knowledge of purpose and objectives can develop EFL Learners critical thinking skills.

Effect of awareness of embedded question

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SDA	1	2.0	2.0	2.0
	DS	1	2.0	2.0	4.0
	N	6	12.0	12.0	16.0
	A	21	42.0	42.0	58.0
	SA	21	42.0	42.0	100.0
	Total	50	100.0	100.0	

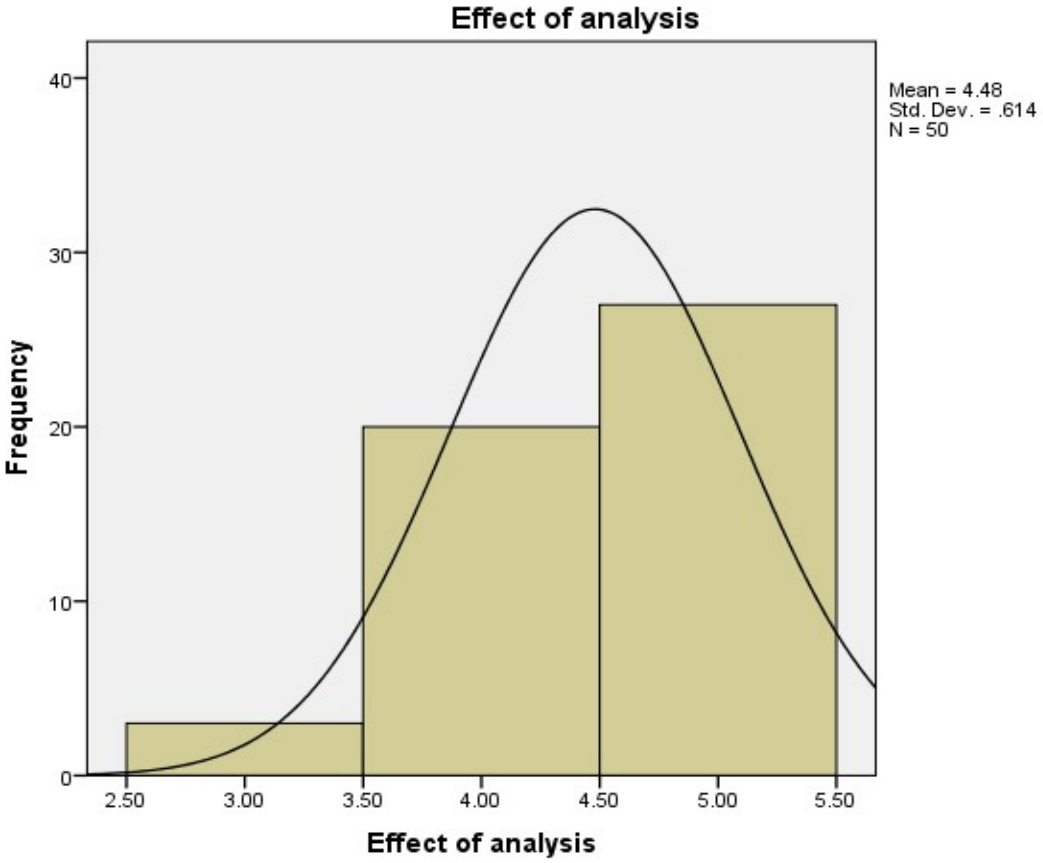


The table above (4-2-2) A big percentage of the respondents (42%) are strongly agree and agree that effect of awareness of embedded questions can absolutely enhance EFL learners critical thinking skills while few respondents (4%) of respondents were disagree upon that and this reflect the need for critical thinking.

Effect of analysis Information, data and facts

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	N	3	6.0	6.0	6.0
	A	20	40.0	40.0	46.0
	SA	27	54.0	54.0	100.0
	Total	50	100.0	100.0	

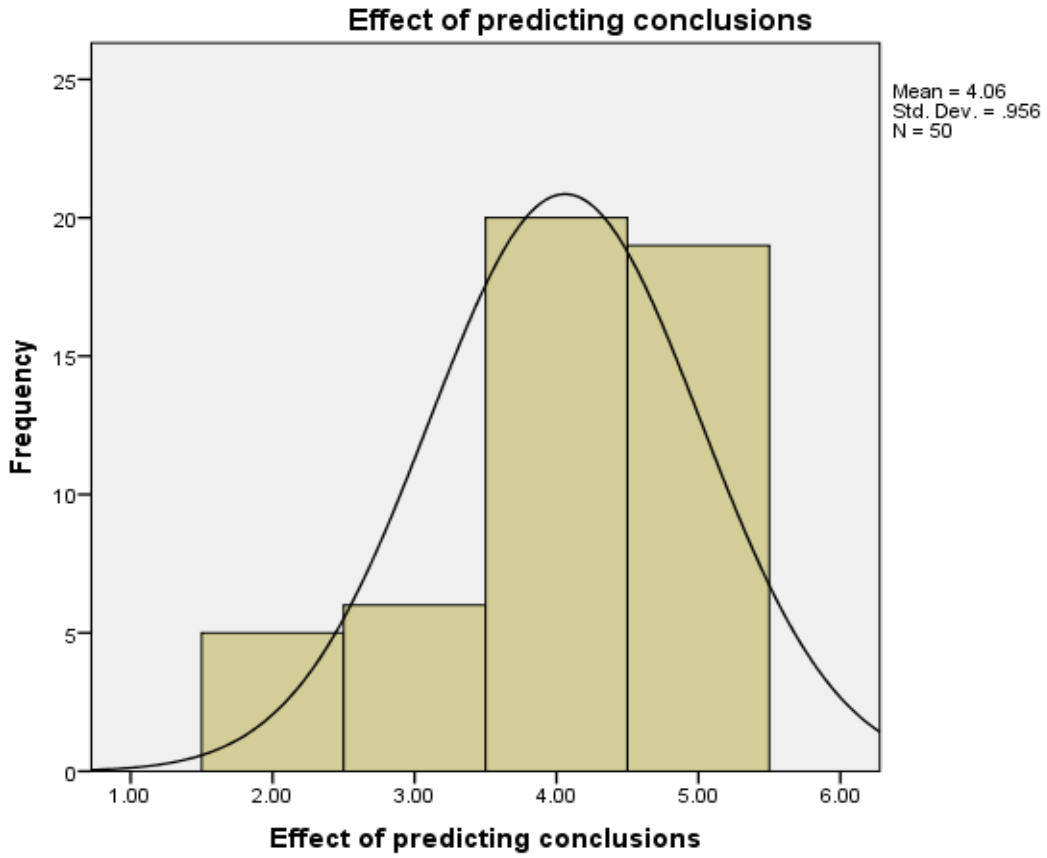


The table above (4-2-3) An extremely large percent of the respondents (54%) are strongly agree and agree that analyzing facts, observations and information surely enriches critical thinking skills among EFL learners critical .

Effect of predicting conclusions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	5	10.0	10.0	10.0
	N	6	12.0	12.0	22.0
	A	20	40.0	40.0	62.0
	SA	19	38.0	38.0	100.0

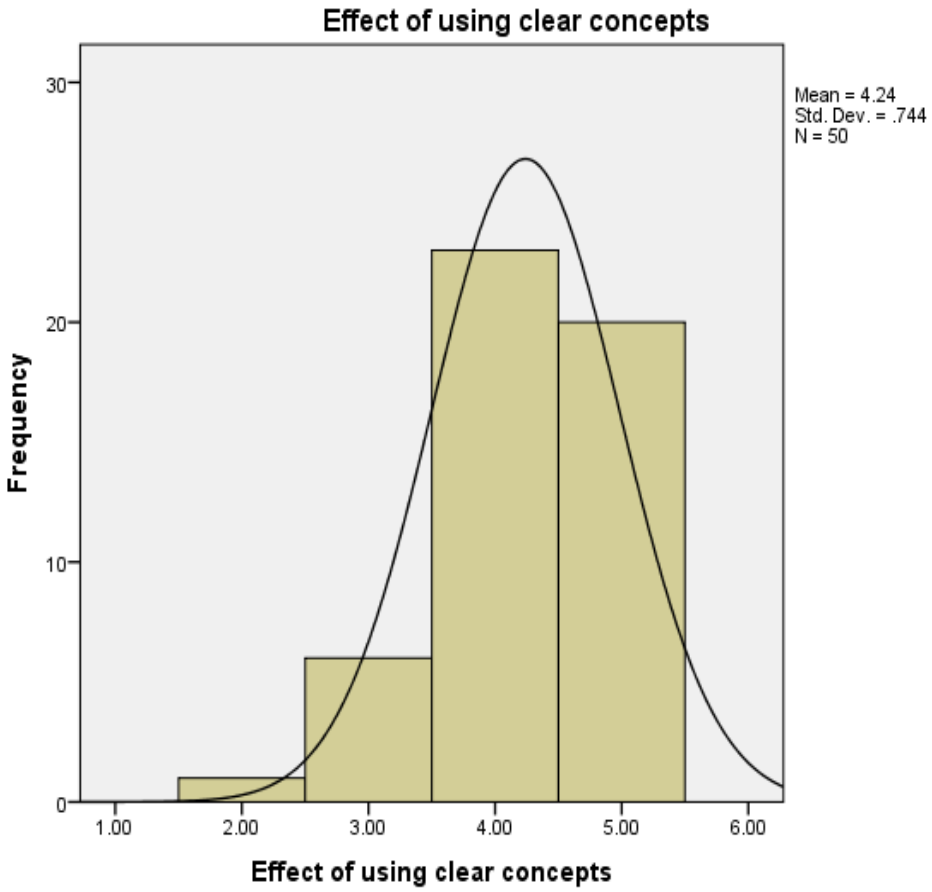
	Total	50	100.0	100.0	



The table above (4-2-4) A majority of subjects(38%) agreed upon predicting conclusions before writing argumentative essay can develop EFL Learners critical thinking skills.

Effect of using clear concepts.

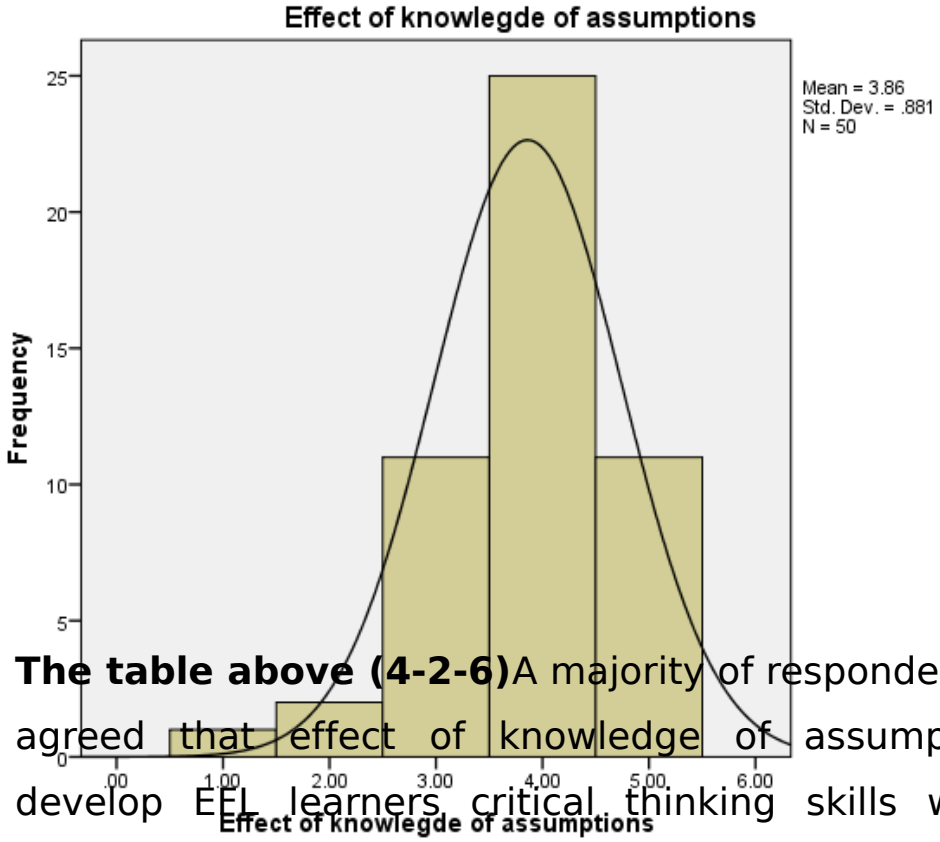
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	1	2.0	2.0	2.0
	N	6	12.0	12.0	14.0
	A	23	46.0	46.0	60.0
	SA	20	40.0	40.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-5) A considerable percent of the respondents (46%) agree that effect of using clear concepts when writing argumentative essay can upgrade EFL learners critical thinking skills.

Effect of knowledge of assumptions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SDA	1	2.0	2.0	2.0
	DS	2	4.0	4.0	6.0
	N	11	22.0	22.0	28.0
	A	25	50.0	50.0	78.0
	SA	11	22.0	22.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-6)A majority of respondents (50%) agreed that effect of knowledge of assumption can develop EFL learners critical thinking skills while few respondents are not sure and very respondents are disagreed on this statement.

Effect of awareness of implications and consequences

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	2	4.0	4.0	4.0
	N	5	10.0	10.0	14.0
	A	29	58.0	58.0	72.0
	SA	14	28.0	28.0	100.0
	Total	50	100.0	100.0	

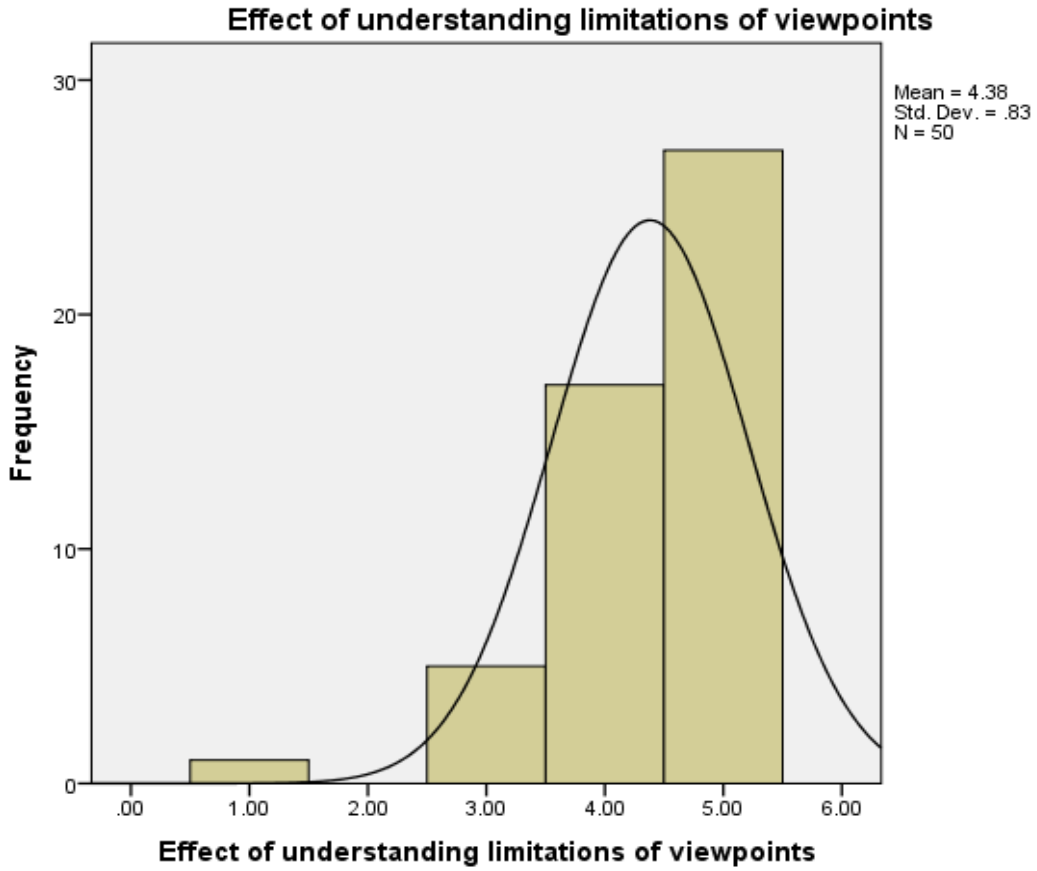
The table above (4-2-7) Most of respondents (58%) were agreed that being aware of effect of implication and consequences enhance critical thinking skills among EFL Learners.

Effect of understanding limitations of viewpoints

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	SDA	1	2.0	2.0	2.0
	N	5	10.0	10.0	12.0
	A	17	34.0	34.0	46.0
	SA	27	54.0	54.0	100.0
	Total	50	100.0	100.0	

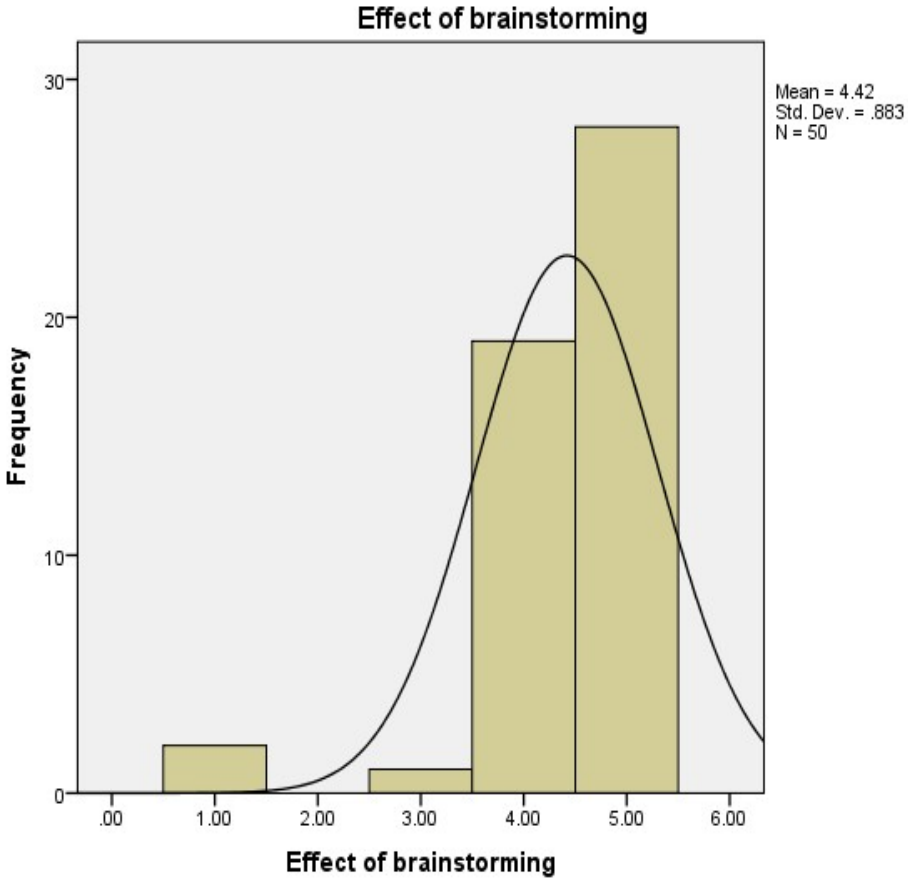
Effect of point of View:



The table above (4-2-8) Almost three quarters of the sample (54%) strongly agree that understanding of points of view and fully considered other view points when writing argumentative essay enhances EFL Learners critical thinking skills, (2%) of respondents are strongly disagree and (10%) are not sure of the correctness of the statement.

Effect of brainstorming

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SDA	2	4.0	4.0	4.0
	N	1	2.0	2.0	6.0
	A	19	38.0	38.0	44.0
	SA	28	56.0	56.0	100.0
	Total	50	100.0	100.0	

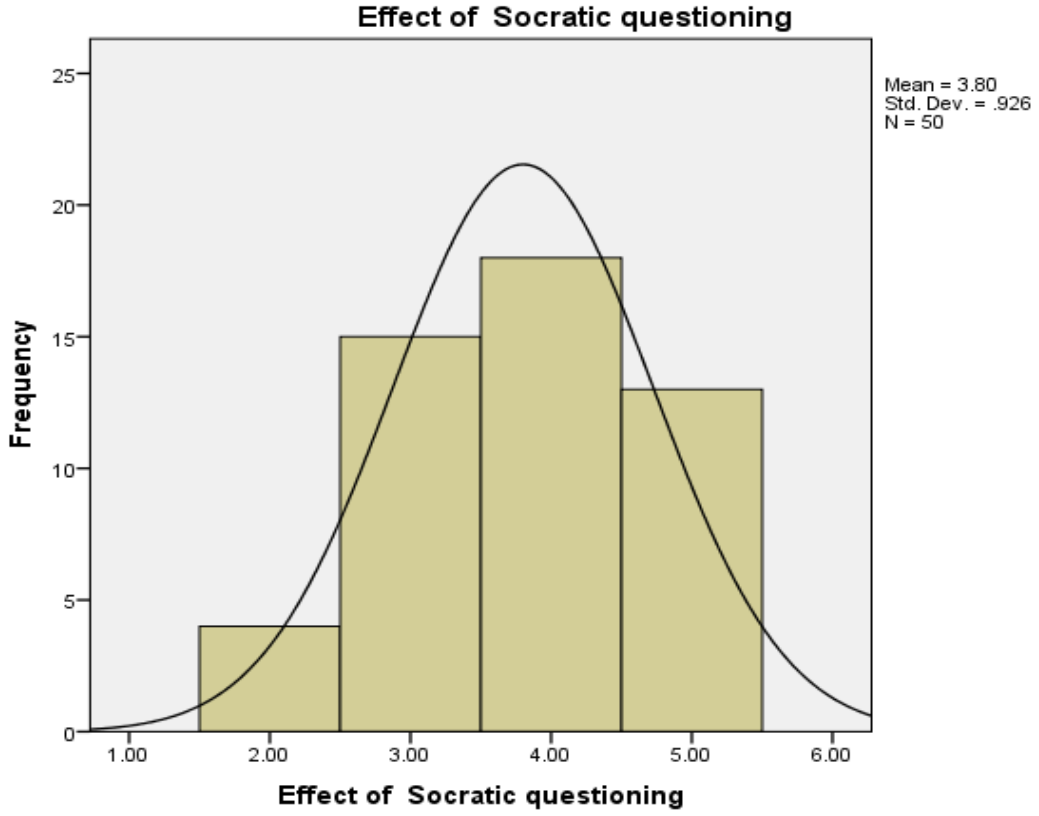


The table above (4-2-9)A big percentage of the respondents (56%) agree that brainstorming technique that EFL learners use help in developing critical thinking skills.

Effect of Socratic questioning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	4	8.0	8.0	8.0
	N	15	30.0	30.0	38.0

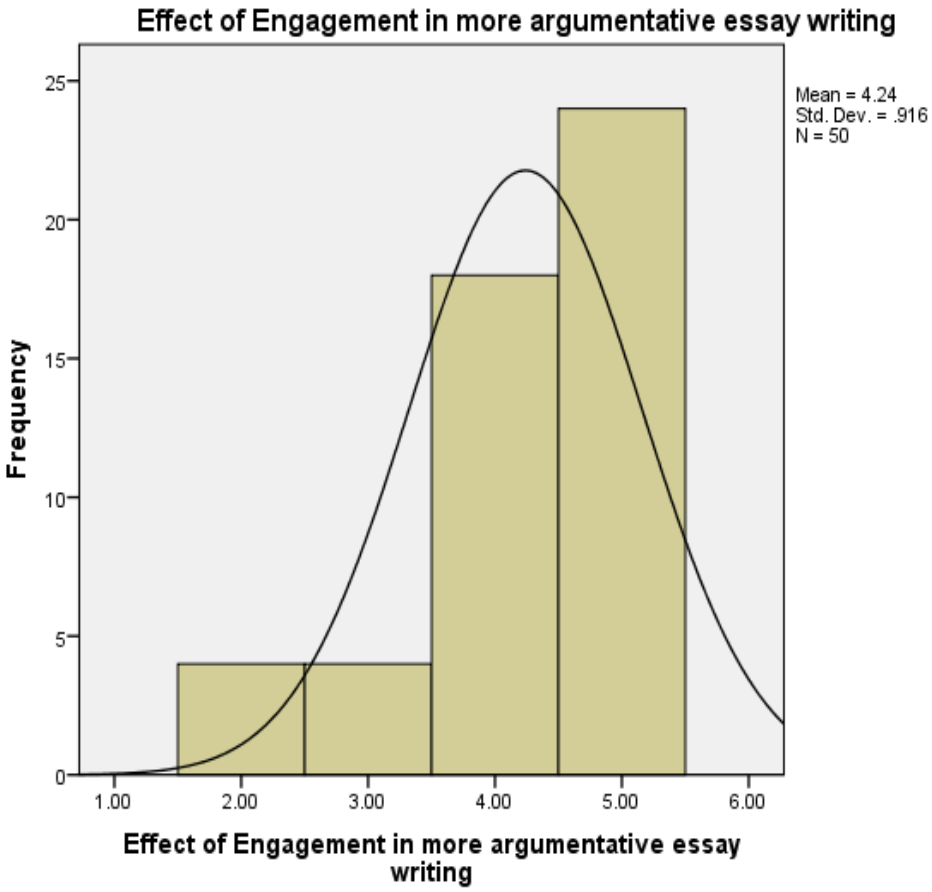
	A	18	36.0	36.0	74.0
	SA	13	26.0	26.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-10) An extremely large percent of the respondents (36%) agree that Socratic Questioning used by EFL learners can absolutely improve their critical thinking skills.

Effect of Engagement in more argumentative essay writing

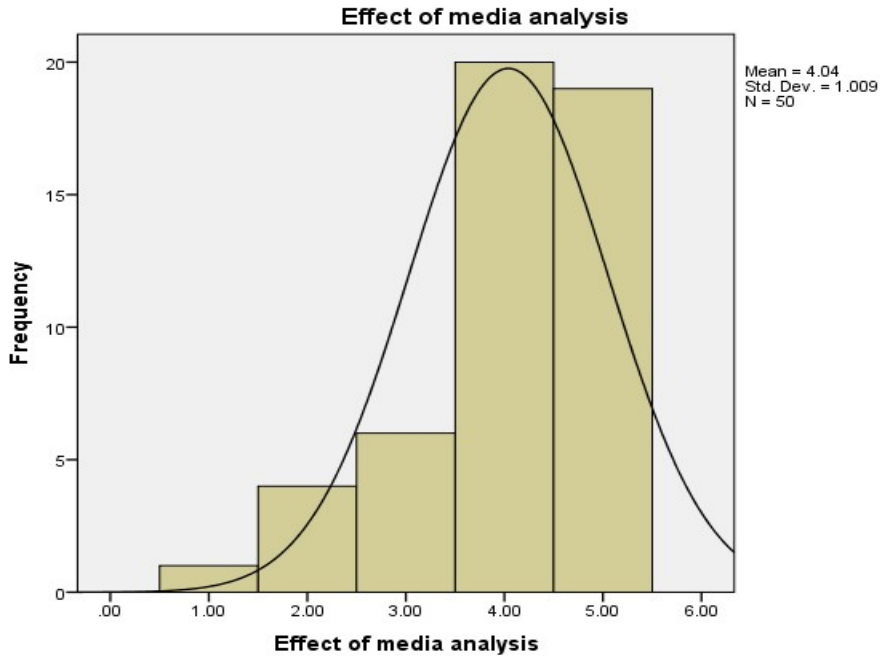
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	4	8.0	8.0	8.0
	N	4	8.0	8.0	16.0
	A	18	36.0	36.0	52.0
	SA	24	48.0	48.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-11) An extremely large percent of the students (48%) agree that engaging EFL Learners in more argumentative essay writing improve EFL Learners critical thinking.

Effect of media analysis

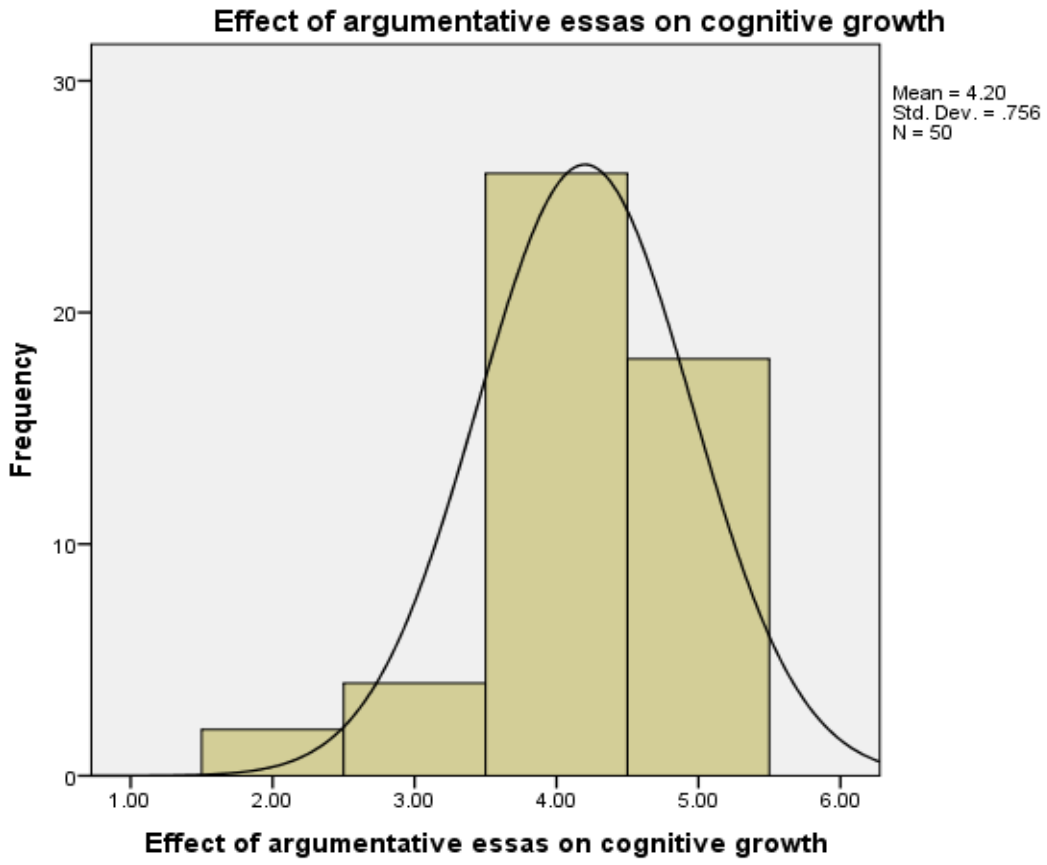
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SDA	1	2.0	2.0	2.0
	DS	4	8.0	8.0	10.0
	N	6	12.0	12.0	22.0
	A	20	40.0	40.0	62.0
	SA	19	38.0	38.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-12) A big percent of the students (78%) agrees that media analysis can enrich EFL Learners critical thinking skills, (2%) of respondents are strongly disagree,(8%) were disagree and (12%) were not sure. So it is natural such response which concords with the previous statement result.

Effect of argumentative essay on cognitive growth

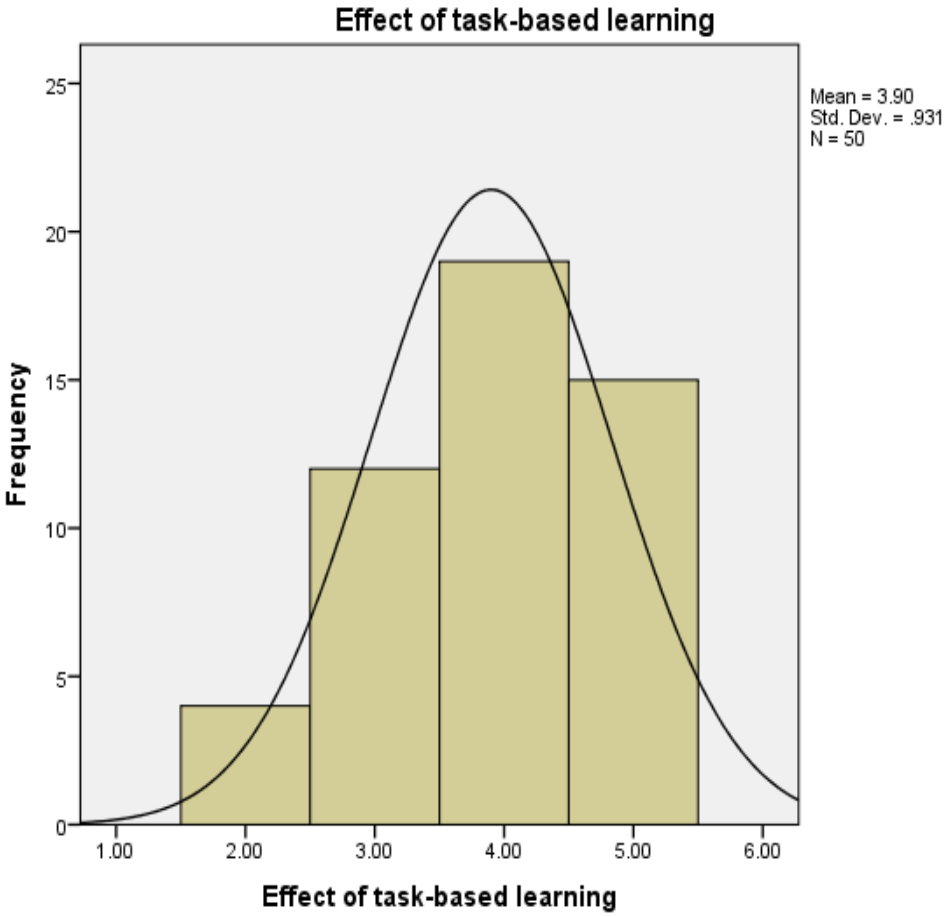
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	2	4.0	4.0	4.0
	N	4	8.0	8.0	12.0
	A	26	52.0	52.0	64.0
	SA	18	36.0	36.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-13) A big percent of the students (52%) agrees writing argumentative essay can stimulate EFL Learners cognitive growth.

Effect of task-based learning.

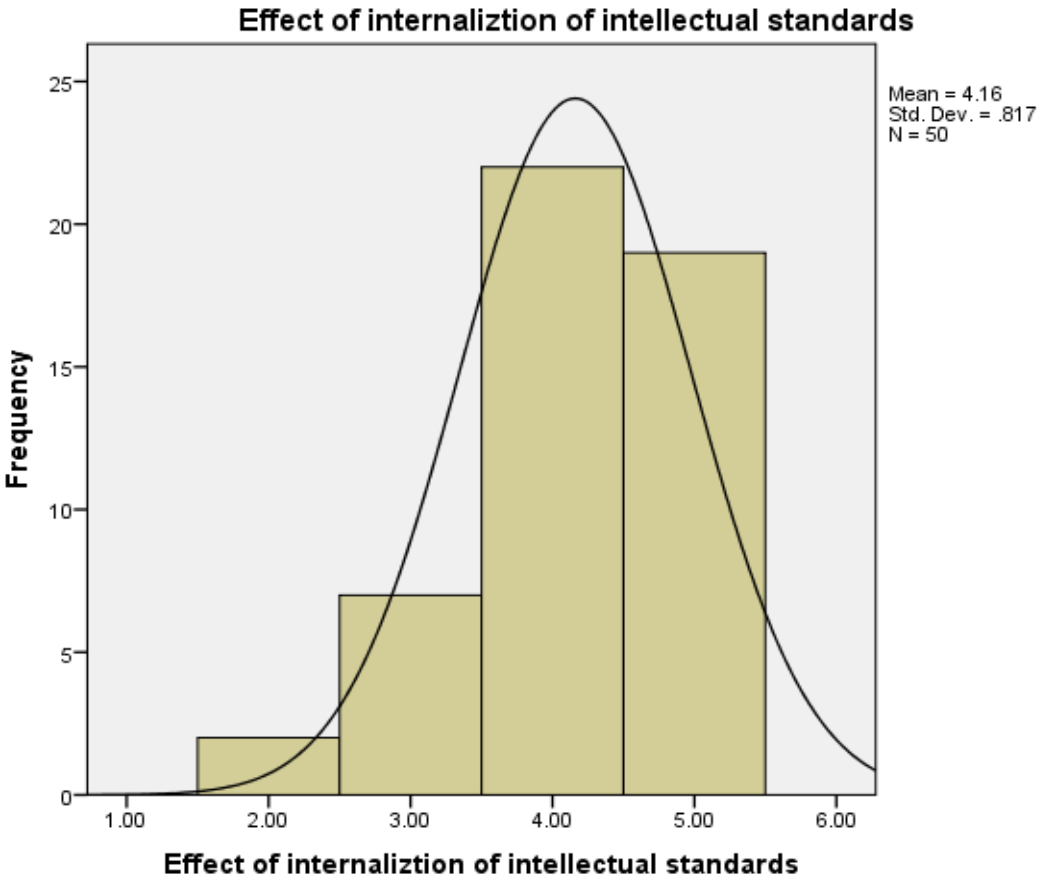
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	4	8.0	8.0	8.0
	N	12	24.0	24.0	32.0
	A	19	38.0	38.0	70.0
	SA	15	30.0	30.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-14) A considerable percent of the students (38%) agrees that task-based learning can definitely enhance EFL Learners critical thinking skills so we can say this response concords with the previous statement.

Effect of internalization of intellectual standards

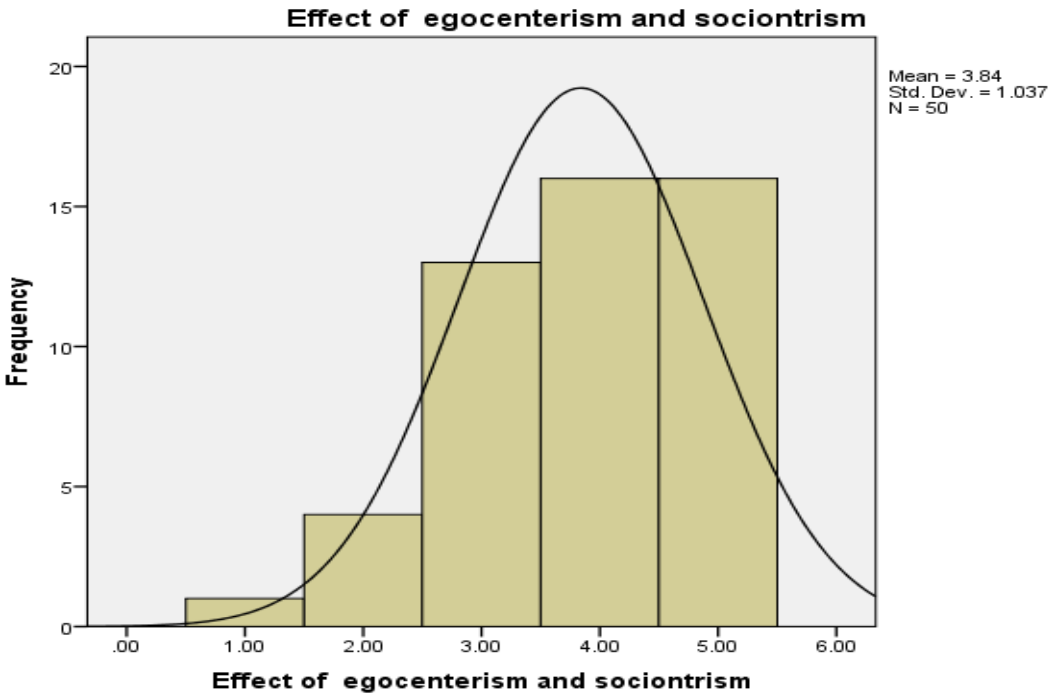
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DS	2	4.0	4.0	4.0
	N	7	14.0	14.0	18.0
	A	22	44.0	44.0	62.0
	SA	19	38.0	38.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-15)A big percent of the respondents' (44%) agrees that internalizing of intellectual standards like(clarity, precision--------) can enrich EFL Learners critical thinking skills so we can say this is necessarily in improving critical thinking skills.

Effect of egocentrism and sociocentrism

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SDA	1	2.0	2.0	2.0
	DS	4	8.0	8.0	10.0
	N	13	26.0	26.0	36.0
	A	16	32.0	32.0	68.0
	SA	16	32.0	32.0	100.0
	Total	50	100.0	100.0	



The table above (4-2-16)A considerable percent of the respondents (32%) agree that using egocentrism and sociocentrism strategies can help EFL learners critical thinking skills,(2%) were strongly disagree,(8%) were disagree and (26%) were not sure of the correctness of the statement.

4.3 Analysis and discussion of the Test:

This section will present the analysis of the pre-test and the post tests for both groups; the control group and the experiment group. The statistical techniques which will be used are:

(1)Independent samples t-tests

(2)Paired samples t-tests

In order to carry out these analyses, there are some assumptions that have to be observed. These are:

(1)Test of normality.

(2) Test of homogeneity

The scores of the tests will be checked for statistically significant differences in order to provide evidence for the verification of hypotheses. The section below will present the tests of normality for the four sets of data. The test of homogeneity will be check later on with Levene's Test for Equality of Variances in the analysis of t-tests.

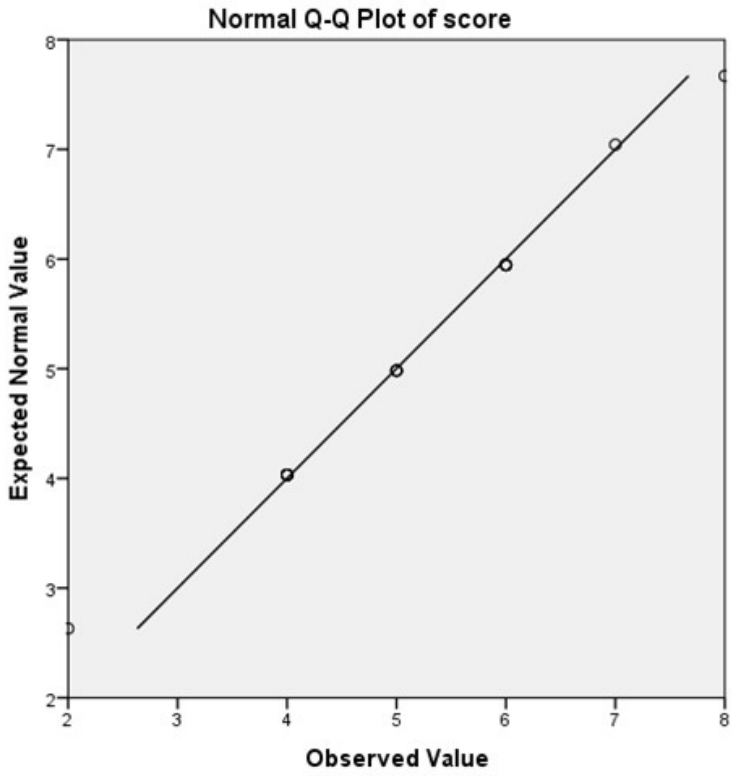
4.3.1 Control Group: Test of Normality

(A) The pre-test

The table below shows that the scores of the Control Group in the pre-test are normally distributed. It gives a Sig. of 0.126 which is greater than 0.05. This indicates that the observations are normally distributed.

Table (4.3.1): Control Group pre-test :Tests of Normality

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
score	.186	20	.069	.925	20	.126
a. Lilliefors Significance Correction						



Q-Q Plot (4.3.1): Control Group pre-test :Tests of Normality

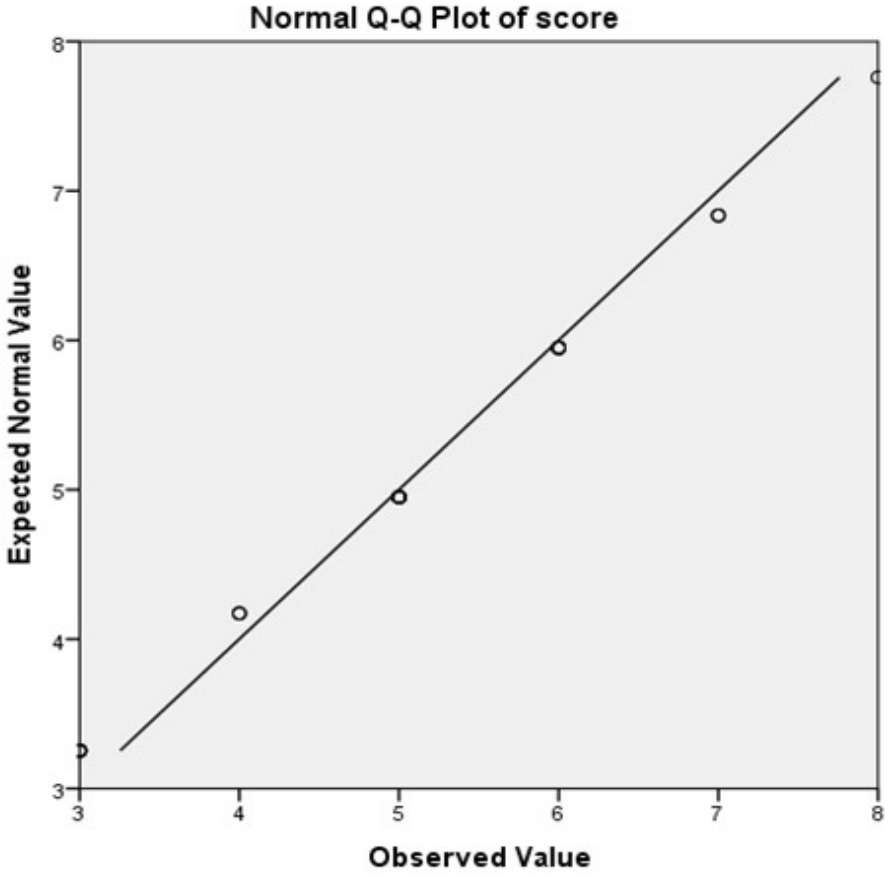
Also the Q-Q plot above indicates normality. Almost all the values are on or close to the diagonal line.

(B) The Post test

The table below shows that the scores of the Control Group in the post test are normally distributed. It gives a Sig. of 0.089 which is greater than 0.05. This indicates that the observations are normally distributed.

Table (4.3.2): Control Group post test :Tests of Normality

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
score	.163	20	.170	.917	20	.089
a. Lilliefors Significance Correction						



Q-Q Plot (4.3.2): Control Group post test:

Tests of Normality

Also the Q-Q plot above indicates normality. Almost all the values are on or close to the diagonal line.

4.3.2 Experiment Group: Test of Normality

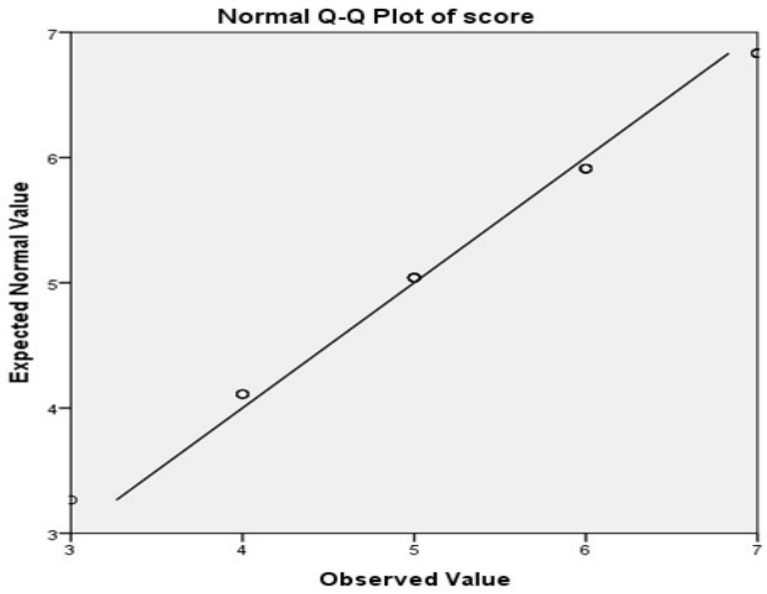
(A) The pre-test

The table below shows that the scores of the Control Group in the pre-test are normally distributed. It gives a Sig. of 0.085 which is greater than 0.05. This indicates that the observations are normally distributed.

Table (4.3.3): Experiment Group pre-test :Tests of Normality Tests of Normality

	Kolmogorov-Smirnov[a]	Shapiro-Wilk

	Statistic	df	Sig.	Statistic	df	Sig.
Score	.187	20	.065	.917	20	.085
a. Lilliefors Significance Correction						



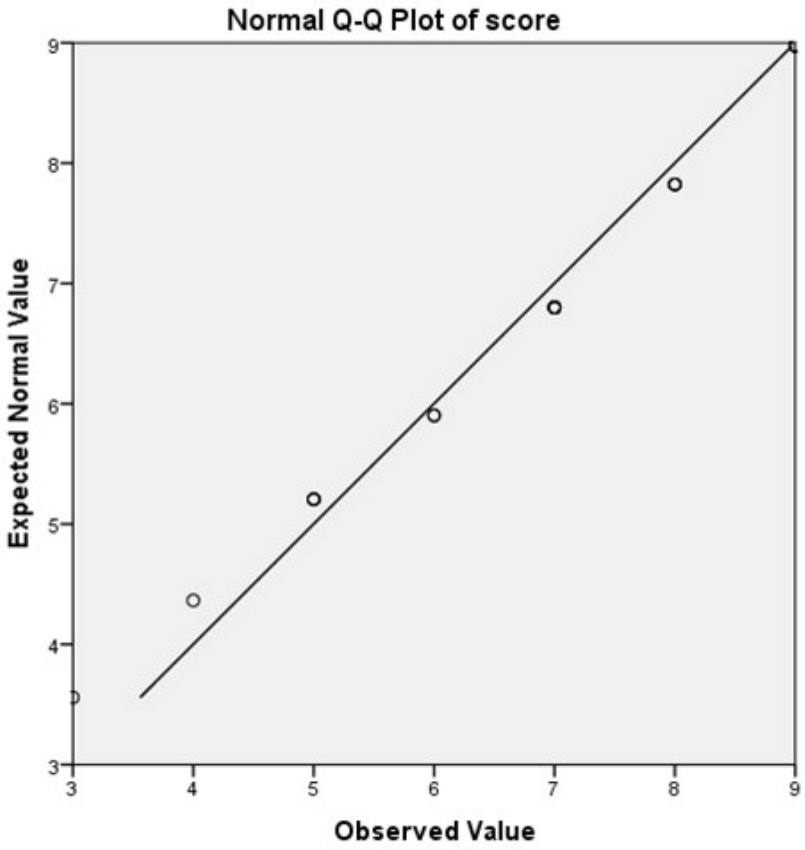
Q-Q Plot (4.3.3): Experiment Group pre-test: Tests of Normality Tests of Normality

Also the Q-Q plot above indicates normality. Almost all the values are on or close to the diagonal line.

(B) The post test

Table (4.3.4): Experiment Group post test :Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
score	.196	20	.043	.927	20	.134
a. Lilliefors Significance Correction						



Q-Q Plot (4.3.4): Experiment Group post test :Tests of Normality

So, all the scores of the four tests are normally distributed.

4.3.3 Paired sample t-tests

This section will present the comparison of means between the pre-test and the post test for both groups; the control group and the experiment group.

(A)**Control Group paired sample t-test**

Table (------): Control Group Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	5.1500	20	1.34849	.30153
	posttest	4.9500	20	1.50350	.33619

This table provides the descriptive statistics for both variables. The mean, the number of observations, the standard deviation, and the standard error mean. The pre-test mean is higher : 5.1500 vs 4.9500.

This means that the performance of the control group declined through the course instead of rising.

Table (------): Control Group Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pretest & posttest	20	.783	.000

This table shows the correlation between the two variables. The Sig. is less than 0.05. This means that there is a strong positive correlation. People who did badly on the pre-test also did badly on the post-test.

Table (------): Control Group Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest - posttest	.20000	.95145	.21275	-.24529	.64529	.940	19	.359

According to this table, t (19) = 0.940, *P* = 0.369.

The table shows that the level of Sig. is 0.369 which is greater than 0.05. This indicates that there is strong evidence that the control group did not achieve any progress. On the contrary, it declined..

(B)**Experiment Group paired sample t-test**

Table (------): Experiment Group Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	5.4000	20	1.14248	.25547
	posttest	6.8000	20	1.73509	.38798

This table provides the descriptive statistics for both variables. The mean, the number of observations, the standard deviation, and the standard error mean. The post test mean is higher : 6.8000 vs 5.4000. This means that the performance of the experiment group improved significantly through the course.

Table (------): Experiment Group Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pretest & posttest	20	.441	.052

This table shows the correlation between the two variables. The Sig. is less than 0.05. This means that there is a strong positive correlation. People who did well on the pre-test also did well on the post-test.

Table (------): Experiment Group Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest - posttest	-1.40000	1.60263	.35836	-2.15005	-.64995	-3.907	19	.001

According to this table, t (19) = -3.907, *P* = 0.001.

The table shows that the level of Sig. is 0.001 which is less than 0.05. This indicates that there is strong evidence that in the case of the experiment group there is a statistically significant difference. This means that

the treatment has had a positive effect on the performance of the students.

4.3.4 Independent Sample t-test

Table (4.3.11): Pre-test Independent sample t-test

Independent Samples Test

		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
score	Equal variances assumed	.313	.579	-.633	38	.531	-.25000	.39520	-1.05004	.55004
	Equal variances not assumed			-.633	37.001	.531	-.25000	.39520	-1.05075	.55075

Levene's Test shows a Sig. of 0.597. This is greater than 0.05.

Then it can be assumed that the variances are approximately equal. Accordingly, the top line (Equal variances assumed) will be considered. As the Sig. is 0.531 (more than 0.05), then there is no significant difference between the achievement of the two groups. This means that before the treatment the two groups had the same performance.

Table (4.3.12):Pre-test Independent sample t-test

Independent Samples Test

		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
score	Equal variances assumed	.401	.530	-3.604	38	.001	-1.85000	.51337	-2.88927	-.81073
	Equal variances not assumed			-3.604	37.246	.001	-1.85000	.51337	-2.88996	-.81004

Levene’s Test shows a Sig. of 0.530. This is greater than 0.05. Then it can be assumed that the variances are approximately equal. Accordingly, the second the top line (Equal variances assumed) will be considered. As the Sig. is 0.001 (less than 0.05), then there is a significant difference between the traditional approach and the new approach. The students who were taught by the new approach achieved higher standards than those who were taught by the traditional approach.

4.4 Summary:

This chapter has covered the data analysis of the study which is about In vestigating the role of argumentative essay in developing EFL Learners' critical thinking. This is done through a questionnaire to teachers and test to the third year students. Moreover, it showed the data tabulated in figure and tables. Then, interpretations were made from the collected data. Finally, the researcher has discussed the results of the study.

Chapter Five

Conclusion, Findings and Recommendations

Chapter Five
Conclusions, Findings and Recommendations

5.0 Introduction

This chapter presents a summary of findings, conclusions drawn from this study and recommendations and suggestion for further studies.

5.1 Conclusion:

Almost of the sample (58%) are strongly agree that effect of knowledge of purpose and objectives can develop EFL Learners critical thinking skills. A big percentage of the respondents (42%) are strongly agree and agree that effect of awareness of embedded questions can absolutely enhance EFL learners critical thinking skills while few respondents (4%) of respondents were disagree upon that and this reflect the need for critical thinking. **)** An extremely large percent of the respondents (54%) are strongly agree and agree that analyzing facts, observations and information surely enriches critical thinking skills among EFL learners critical.

A majority of subjects(38%) agreed upon predicting conclusions before writing argumentative essay can develop EFL Learners critical thinking skills. A considerable percent of the respondents (46%) agree that effect of using clear concepts when writing

argumentative essay can upgrade EFL learners critical thinking skills.

A majority of respondents (50%) agreed that effect of knowledge of assumption can develop EFL learners critical thinking skills while few respondents are not sure and very respondents are disagreed on this statement. Most of respondents (58%) were agreed that being aware of effect of implication and consequences enhance critical thinking skills among EFL Learners.

Almost three quarters of the sample (54%) strongly agree that understanding of points of view and fully considered other view points when writing argumentative essay enhances EFL Learners critical thinking skills, (2%) of respondents are strongly disagree and (10%) are not sure of the correctness of the statement. A big percentage of the respondents (56%) agree that brainstorming technique that EFL learners use help in developing critical thinking skills. An extremely large percent of the respondents (36%) agree that Socratic Questioning used by EFL learners can absolutely improve their critical thinking skills. An extremely large percent of the students (48%) agree that engaging EFL Learners in more argumentative essay writing improve EFL Learners critical thinking. **)** A big percent of the students (78%) agrees that media analysis can enrich EFL Learners critical thinking skills, (2%) of respondents are strongly disagree,(8%) were disagree and (12%) were not sure. So it is natural such

response which concords with the previous statement result.

A big percent of the students (52%) agrees writing argumentative essay can stimulate EFL Learners cognitive growth. **)** A considerable percent of the students (38%) agrees that task-based learning can definitely enhance EFL Learners critical thinking skills so we can say this response concords with the previous statement. A big percent of the respondents' (44%) agrees that internalizing of intellectual standards like(clarity, precision--------) can enrich EFL Learners critical thinking skills so we can say this is necessarily in improving critical thinking skills.

A considerable percent of the respondents (32%) agree that using egocentrism and sociocentrism strategies can help EFL learners critical thinking skills, (2%) were strongly disagree,(8%) were disagree and (26%) were not sure of the correctness of the statement.

5.2 **Findings of the Study:**

1- Almost of the respondents (98%) were supported the knowledge of purpose of objectives can surely develop English as a foreign Language Learners critical thinking skills through argumentative essay writing.

2- Regarding the awareness of embedded questions a big percentage of questionnaire respondents (84%) agreed it can enrich critical thinking skills through argumentative writing.

3- The majority of teachers are absolutely see that analyzing information, data and observations through argumentative essay can surely develop EFL Learners critical thinking skills.

4.The results also showed that predicting the conclusion before writing argumentative essay enhance critical thinking of EFL Learners.

5. Third year students can achieve critical thinking skills the writing argumentative essay writing if they well trained and apply the strategies of writing argumentative essay writing properly.

6.Few numbers of third year students don't write confidently in English.

7.The period of 30 hours of instruction is quiet enough to teach this amount of course perfectly and train the students as well as shown in chapter four particularly experimental group.

5.3 Recommendations:

Regarding the results of the study the researcher has reached some recommendations which should be taken in consideration by authorities, teachers and students:

1.Teachers of English language should be given special and adequate trainings courses in how to teach critical thinking skills.

2.English language has to be taught by specialized teachers so as to help students by using majority of techniques and strategies of argumentative essay writing which help EFL learners develop critical thinking skills.

3.Third year text books should include critical thinking lessons which can help them foster writing properly.

4.Writing sessions should be given sufficient time when it is accompanied by critical thinking modules.

5.English language teachers professional development is absolutely essential particularly critical thinking workshops should be taken in consideration.

6.The ministry of higher education should contribute in preparing English language teachers by organizing more workshops and seminars in critical thinking because it is vital skill not only academically but also as citizens as well.

5.4 Suggestions for further Studies:

1. The study concerns tertiary level students, further research should be concern secondary or basic schools students because critical thinking can be taught at any level.

2. The study only investigated the role of argumentative essay in developing critical thinking skills, further research should be conducted in developing critical thinking through reading skill.

3. Developing critical thing through discussion or debates.

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Appendices

Appendix A

Sudan University of

Science & Technology College of

Education Department

of English Language

Write an argumentative essay about one of the following topics:

1. The role of women in the society
2. Social net work like(facebook, twitter, instegram ... etc
3. Co-education

Appendix B

Sudan University of Science and Technology

College of Graduate Studies

Faculty of Education

Argumentative Essay in Developing Critical Thinking

المقال الجدلى لتطوير التفكير الناقد

A questionnaire submitted for PH.D degree in Applied Linguistics

Teacher's Questionnaire

2016

The purpose of this questionnaire was to investigate how we can develop EFL learners' critical thinking through argumentative essay writing.

Be sure that all information gained from this study will be treated confidentially. The results of this study will only be use for academic purposes .and individual will not be identified at the report of the study.

Part one:

Personal information

Please tick (√) the answer of your choice.

Gender: Male ( ) Female ( )

Years of teaching experience

1 –5 years ( ) 5---10 years ( ) 10 -15 years 15 -20 ( ) 20 and more ( )

Teacher's View towards critical Thinking

- I am unprepared to teach critical thinking yes ( ) No ( )
- I attended pre-service critical thinking workshopsyes ( ) No ( ) - I always attend in-service critical thinking sessions yes ( ) No ( )

Part two:

To determine the extent at which you accept or refuse to any of the statements below, please tick (√) the answer of your choice.

Table Questionnaire Statements

No	Statement	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
To what extent can argumentative essay enriches EFL Students' critical thinking skills?						
1.	knowing the purpose and objectives when writing argumentative help in developing EFL learners critical thinking					
2.	Being aware of what the questions embedded in writing argumentative essay this will develop EFL Learners critical thinking					
3.	Analyzing the information, facts and observation when writing argumentative essay cultivate EFL Learners critical thinking					
4.	predicting the conclusions before writing my argumentative essay help develop EFL learners critical thinking					
5.	Using clear concepts when writing argumentative essay develop EFL learners critical thinking					
6.	Knowing the assumptions and everything taken for granted while writing argumentative essay will definitely develop EFL learners critical thinking					
7.	Being aware of what is meant by implications and consequences when writing argumentative essay develop EFL learners critical thinking					
8.	Understanding the limitations of point of view and fully					

	consider other viewpoints when writing argumentative essay help in developing EFL learners critical thinking					
	Which argumentative essay writing strategies can help EFL Students' develop critical thinking?					
9.	**Brainstorming technique help EFL learners to develop their critical thinking intellectual standards**					
10.	**The process of questioning taking Socratic questioning as an example will develop EFL learners critical thinking (Thinking is question driven)**					
11.	**Engaging EFL learners in more extensive argumentative essay writing will improve EFL learners critical**					
12.	**Media analysis will upgrade EFL learners to think critically**					
13.	**Writing argumentative essay will stimulate EFL learners cognitive growth**					
14.	**Using task-based learning to help EFL Learners develop disposition for critical thinking**					
15.	**Helping EFL learners internalize intellectual standards (Clarity, Precision…..) that can help them develop critical thinking**					
16.	**Using egocentrism and sociontrism strategies can help EFL learners develop critical thinking**					

Thank you very much for your Valuable input in this study.

List of the students who had taken the test:

Controlled group

م	اسم الطالب	Pre - test	Post - test
1	عائشة مضوي زايد	5	6
2	عبدالكريم محمد عمر عبدالله	6	7
3	اسامة عبدالله	4	3
4	شيماء صديق الفضل	6	6
5	رجاء محمد حامد	4	3
6	جهاد الوسيلة محمد	4	3
7	السيد آدم عثمان	5	5
8	أيمن محمد بشارة	4	5
9	بدور إبراهيم آدم	2	3
10	سماح عاطف عبدالرحيم	6	5
11	فاطمة أحمد عبدالله	6	5
12	حنان إبراهيم إسماعيل	5	6

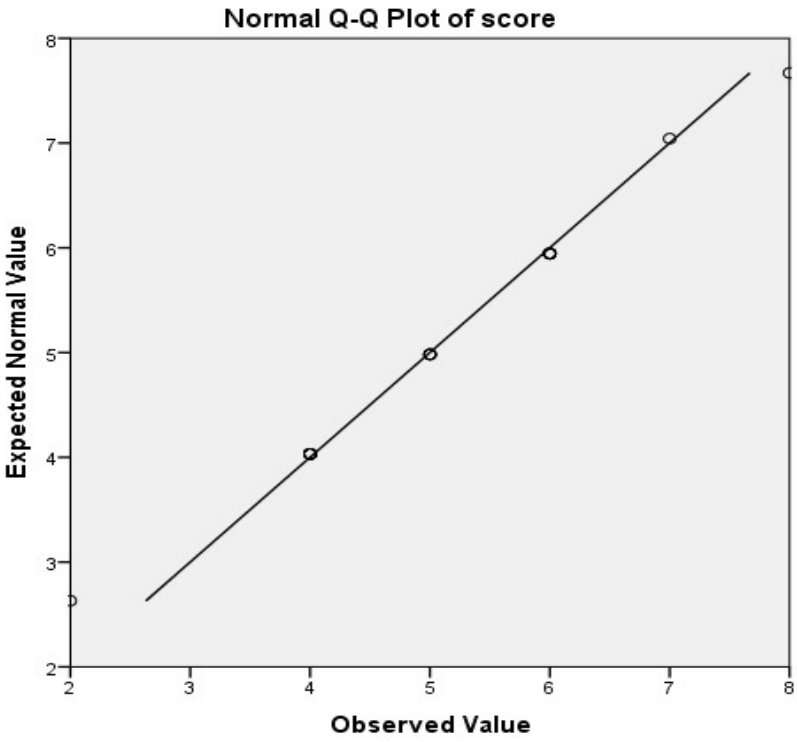
13	أسماء عوض الجيد إبراهيم	4	5
14	حفصة ياسين محمد	6	6
15	كوثر التوم الأمين	5	4
16	جواهر محمد عبدالله	6	5
17	نمارق عوض الله	6	4
18	إبتسام بشير علي	7	7
19	وجدان برعي	8	8
20	سهام قسم البارى العطا	4	3

Pre-test normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
score	.186	20	.069	.925	20	.126

a. Lilliefors Significance Correction

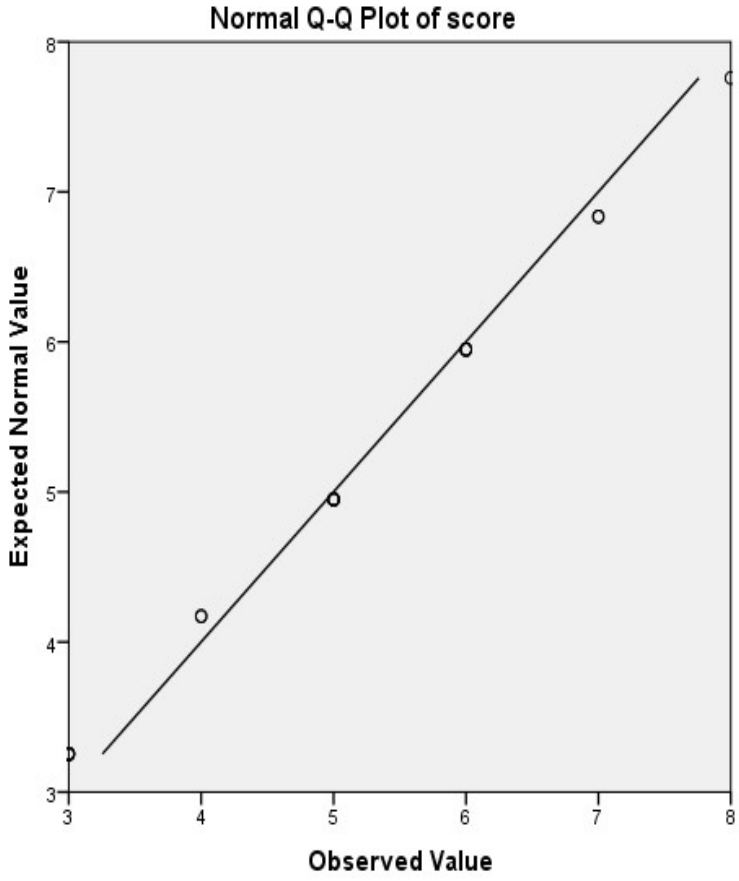


Post test normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
score	.163	20	.170	.917	20	.089

a. Lilliefors Significance Correction



Experimental group

م	اسم الطالب	Pre - test	Post - test
1	ندى عبدالدافع الطاهر	7	8
2	ترتيل سيف محمد حامد	5	6
3	سناء يعقوب عبدالله محمد	7	9
4	اسراء فيصل الطيب محمد	5	5
5	سارة محمد أحمد عبدالله	4	3
6	سماح جابر موسى عبيد	5	4
7	مشتهى سر الختم خلف الله	5	7
8	نصر الدين يحي يعقوب	3	7
9	ياسين سعيد عبدالله	5	8

10	هاشم محمد بانقا حسن	4	7
11	نضال عبدالله محمد الهادي	7	6
12	هديل صديق يعقوب	5	5
13	تسنيم نصر الدين علي	6	8
14	مامون أحمد عبدالقادر	6	7
15	معاوية عبدالقادر محمد الحسين	5	7
16	حسين الضي عبدالله	7	9
17	تحيات آدم ادريس	6	9
18	سمية بشير محمد عبدالله	6	5
19	حواء آدم برمة أدم	6	9
20	نعمات آدم محمد	4	7

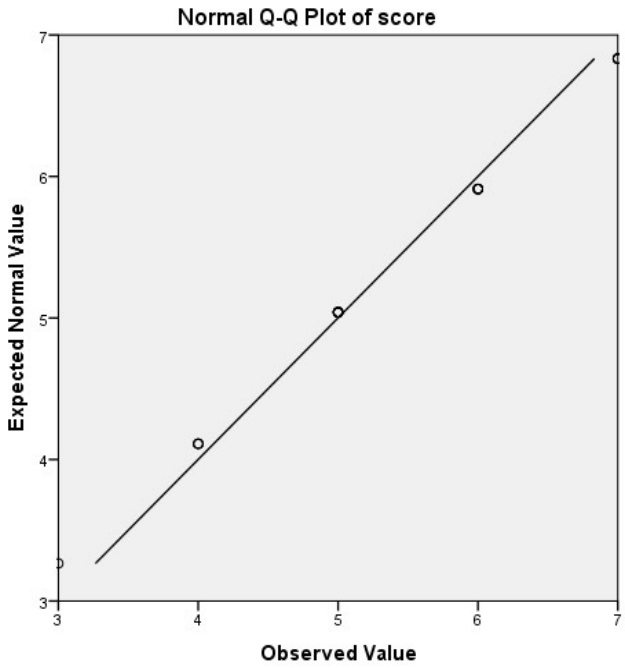
Pretest normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
score	.187	20	.065	.917	20	.085

a. Lilliefors Significance Correction

Post ttest

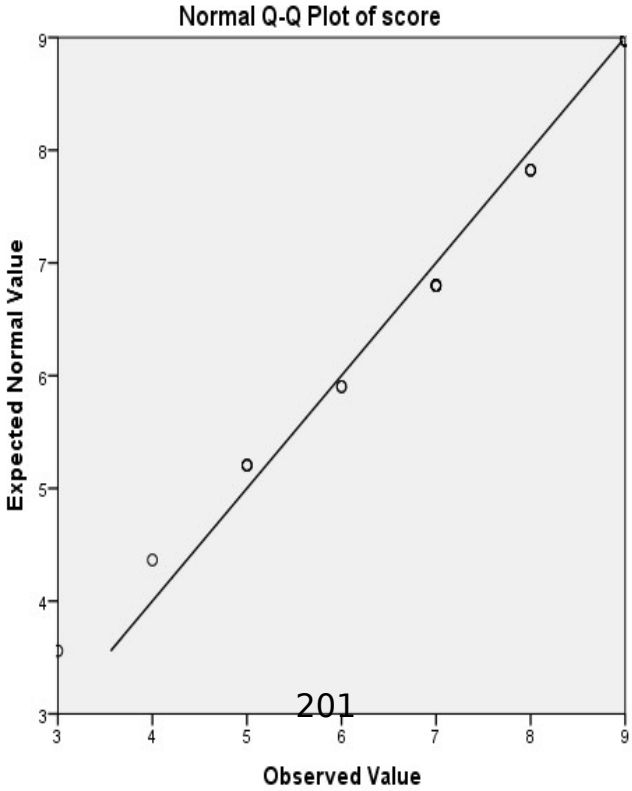


normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
score	.196	20	.043	.927	20	.134

a. Lilliefors Significance Correction



Compare means: pre-tests

Independent Samples Test										
		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
score	Equal variances assumed	.313	.579	-.633	38	.531	-.25000	.39520	-1.05004	.55004
	Equal variances not assumed			-.633	37.001	.531	-.25000	.39520	-1.05075	.55075

Compare means: post tests

Independent Samples Test										
		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
score	Equal variances assumed	.401	.530	-3.604	38	.001	-1.85000	.51337	-2.88927	-.81073
	Equal variances not assumed			-3.604	37.246	.001	-1.85000	.51337	-2.88996	-.81004

Control group: paired sample t-test

Table (------): Control Group Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	5.1500	20	1.34849	.30153
	posttest	4.9500	20	1.50350	.33619

Table (------): Control Group Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pretest & posttest	20	.783	.000

Table (------): Control Group Paired Samples Test

	Paired Differences					t	df	Sig tai
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
pretest - posttest	.20000	.95145	.21275	-.24529	.64529	.940	19	.3

Experiment group Paired sample t-tets

Table (------): Experiment Group Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	5.4000	20	1.14248	.25547
	posttest	6.8000	20	1.73509	.38798

Table (------): Experiment Group Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	pretest & posttest	20	.441	.052

Table (------): Experiment Group Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pretest - posttest	-1.40000	1.60263	.35836	-2.15005	-.64995	-3.907	19	.001

Argumentative Essay Marking Criteria

Comprehension	**The student displays a comprehensive knowledge and understanding of the chosen argument, and the essay shows evidence of independent reading**	**The student displays a comprehensive knowledge and understanding of the chosen argument.**	**The student displays a sound knowledge and understanding of the chosen argument.**	**The student shows a limited knowledge and understanding of the chosen argument.**	

Communication (analysis)	**The student demonstrates an excellent ability to analyze, synthesize, rationally assess and justify viewpoints. There is evidence of independent philosophical thought.**	**The student demonstrates a good ability to analyze, synthesize, rationally assess and justify viewpoints.**	**The student demonstrates some ability to analyze, synthesize, rationally assess and justify viewpoints.**	**The student has attempted to analyze the chosen argument, but the analysis is unclear.**	**Th**

Communication (expression)	**Assertion and argument are clearly and concisely expressed. The use of language in reasoning and in articulating and justifying philosophical positions is effective.**			**Assertion and argument are clearly expressed. The use of language in reasoning and in articulating and justifying philosophical positions is mostly effective.**			**Expression is usually clear and the use of language is generally effective.**			**Expression often lacks clarity with frequent lapses in the correctness and appropriateness of language.**			**E x**
Overall result:	**A+**	**A**	**A-**	**B+**	**B**	**B-**	**C+**	**C**	**C-**	**D+**	**D**	**D-**	**E**