

# The Effect of Teaching Critical Thinking Skills on the Advanced Learners of English at the University of Basra

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## الخلاصة

دخل مفهوم التفكير النقدي أجواء الحياة والاكاديمية من غير استئذان. وبكل بساطة يعد التفكير النقدي من المفاهيم قديمة الأمد منذ عصر سقراط، وأفلاطون وياكون وآخرين. كلنا نفكر ومن لا يفكر؟ لأننا محبوبون على التفكير بيد إن جل تفكيرنا هو جزئيات لا قيمة لها، ومشكلة، وأفكار مشوهة. وإيديولوجيات ما أنزل الله بها من سلطان. وطبيعة الحياة وقيمتها تعتمد على طبيعة تفكيرنا. كلما كان تفكيرنا أرقى وأسمى كانت قيمة الحياة أكبر والعكس صحيح. ويعد مفهوم التفكير النقدي من أهم مفاهيم علم النفس، وأفاد مدير الأبحاث في مؤسسة التفكير النقدي ريتشارد بول قائلاً إن "التفكير النقدي هو فن من فنون التفكير حول القائم على الدقة والوضوح، والارتباط، وهو فن التشكيك البناء والتشكيك في آراء الآخرين وتقييمها وتحليلها وإعادة بنائها، وفن التخلص من المحاباة والأفكار الأحادية الجانب، وهو أعلى درجات التفكير والإبداع فيه" وعبارة أخرى (هو التفكير بالتفكير الأفضل فالأفضل فالأرقى). من حيث لمبدأ، جاء التفكير النقدي باباً لحل مشاكل الحياة والاكاديمية بكل صورها.

اعتمد الباحث على مفهوم التفكير النقدي لدى ريتشارد بول، وتطبيقه على درس المغاللة لطلبة المرحلة الثالثة في قسم الانكليزية في كلية الآداب. تم ريتشارد بول مفهومين للتفكير النقدي: سمي الأول بعناصر التفكير والآخر بالمعايير الذهنية للتفكير التي تعمل على تقييم تلك

العناصر ، كما هو موضح في من البحث . إذا اعتمدت الدراسة على اختيار مقالات متنوعة مثل: العنف في التلفاز ، وفن القراءة ، وقيمة الحياة والإساءة إلى الأطفال، وأساس التقييم هو خمسة معايير في الكتابة : الموضوع، وتحليل رؤى الكتاب ، والتنظيم ، والمعلومات المدعومة ، والنحو والصرف . وتخللت الدراسة العديد من التنبؤات والفعاليات منها : الاستبيانات المتنوعة ، الأسئلة النقدية ، الجدل وغيرها.

وكانت النتيجة بان الطلبة غير مؤهلين عند تقييم الأداء لكتابتهم في الخمسة جوانب المذكورة آنفاً ، حيث تم تصنيفهم إلى مستوى أدنى ، ومستوى متوسط ، ومستوى أعلى ، حسب ما جاء في الاختبار.

أجرى الباحث تدريبات خاصة وورش عمل أكاديمية للطلبة لتطوير مهارات التفكير النقدي واستراتيجيات تطوير الأفكار البناءة ، وتطبيقه على فن الكتابة وصورها. وكانت النتيجة مدهشة حقاً ، حيث ارتقى مستوى الطلبة وأصبحوا قادرين على التطوير نوع جديد من الكتابة ناطقة نقدية من نوعها بعدما كانت مسالمة جامدة معبرة عن آراء كتابها.

وفي الختام ، مما لا يقبل الشك بأن مفهوم التفكير النقدي من أروع ما يقدم الفكر و بطور بنينه التحتية. وبفأ على تجريبي العملية في التدريس و كوني احد الأعضاء في جمعية التفكير النقدي، أقترح بإدخال مهارات واستراتيجيات التفكير النقدي في التعليم بصورة عامة، و الكليات بصورة خاصة، تخلق طلبة واعين فكرياً.

## Abstract

The paper investigates the unavoidable importance of fostering critical thinking skills in the teaching of essay writing for the third year university students. A great emphasis is placed on improving the CT skills of the students by incorporating Richard Paul's elements and standards of reasoning into college classrooms.

On this basis, this action-based study includes essays on different topics: *violence on TV, Iraqi constitution premise, Garbage problem, and the value of human life*. The students were found completely undeveloped during the assessment of their writing in the five areas in writing: clarity of writing, analysis of author's argument, use of supporting information,

organization, and grammar and syntax. They were of different group levels: high, mid and low.

However, after focused critical thinking training, students were identified as good essay developers in all the above mentioned areas. What is suggested here is to incorporate seriously the CT skills and strategies into college classrooms standards-based curriculum so that students can develop better thinking in all course materials.

This study presents a general overview of the concept 'critical thinking', its importance to college students in education and life, under the three realms of questioning: *the what, the how and the why*. Moreover, the paper offers a historical background and basically a thorough understanding of the new concepts and terminologies of the very term. Most importantly how critical thinking is connected with teaching and learning will be the interest of this paper. What stakes at all purposes is the fostering of the CT skills into college classrooms and examines how effective the CT skills are in the teaching in general and in teaching essay writing in particular in the five above mentioned areas. The results arrived at in this paper reveals much of the students' power of mind's at the college of Arts/Department of English and their thinking abilities in comprehending the secrets of the power of writing through what is called thought-stimulating types of questions process. What follows up is the complete research plan adopted for this study.

This paper is an adoption of the research studies done by Gregory Bassham et al (2008) *Critical Thinking: A Students Introduction*, and Mathew Allen (2004) *Smart Thinking: Skills for Critical Understanding and Writing*. I am greatly indebted to the critical thinking foundation, especially to Dr. Richard Paul and Linda Elder and some members for their continued moral support, materials and books via DHL. Also, special thanks are due to Dr. Majeed Al-Mashta and Dr. Stephan Breidbach for their guidance, reviews and prompt replies.

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## 1. Problem Identification

As a teacher of English grammar and proof reading at the University of Basrah, I am often frustrated with the lack of depth in my student's responses and paper works. It has been noticed along my career the bad quality of their thinking. Henceforth, after taking a precise investigation, serious works and continuing training with critical thinking foundation, I focused on the affective skills of thinking independently while applying the intellectual standards of clarity, accuracy, precision, relevance, depth, logic and fair-mindedness to teaching the course materials.

The basic problem of the study is that third year students lack the necessary critical thinking skills in writing. Teachers believe they are unconsciously teaching critical thinking skills and incorporate them into their classes, and students believe that they are learning the CT skills. However, the troubling indicator is that teachers themselves lack the CT skills (Paul:1993) and (Noddings 2006: 9). This means that if the masters lack the skills it is definite for their followers not to have them, and therefore they are in no position to teach the CT skills.

Students have great capacities but most of it is undeveloped and biased. What they need is to get their thinking better by simply training to think critically (skills and strategies) since the students "are not told what to believe. They learn what others have said and believed" (ibid). This point is crucially in question.

## 2. Purpose of the study

This paper examines the way the focused critical training students take for developing the essay writing measured in five areas: clarity of writing, analysis of author's argument, use of supporting information organization, and grammar and syntax, developed and advocated by Richard Paul's 'elements and standards of critical thinking'.

## 3. Methodology

The methods utilized in this paper take a qualitative research perspective in which the students' advancement was evaluated by

comparing their writing samples from before pre- CT training to samples from post training- based on the five areas of writing skills.

The study utilizes the effect of CT training through a progressive analysis of their writings through rubric assessment over the training course. Students were asked to write 3 in-class assignments of the above- proposed topics.

What comes next is the effective writing skills students used in increasing the clarity of writing, level of analysis, organization of ideas, use of supporting information and accuracy of grammar, which were in effect quantitatively measured. A condensed eight-week CT training on the five areas showed a rapidly changing student's thinking world and capacities in writing. On a random selection basis, out of seventy third year students, the total number of the test-takers is thirty. The question is raised as to why third students, though mentioned somewhere in the paper. The answer is put simply as 'the researcher sees third year students are more mature , open-minded and keen learning and are able to adapt to new situations as they arise'. Then, the students will be identified as high-range achievers, mid-range achievers, and low-range achievers in order to measure the effect of CT training on each.

#### **4. The Concept of Critical Thinking (CT)**

Critical thinking is widely manipulated in education and life. How educators understand Critical Thinking in the modern sense will determine how they apply it at its utmost. W.G. Sumner (1940) defines critical thinking as "the examination and test of propositions of any kind which are offered for acceptance, in order to find out whether they correspond to reality or not"

The critical thinking researcher Richard Paul (2004:5) further defines

*Critical thinking is 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*

See also Gregory Bassham et al (2003:1-2), and John Chafee (2000)

When I contacted Dr. Elder and Paul (2009) regarding the research study that shared the effectiveness of their program, particularly that of Paul's, and other studies sought for teaching the Iraqi University students the critical thinking strategies in general, Dr. Elder replied:

*There is no more important goal than the cultivation of critical thinking. This is true because thoughts don't just sit in human minds, they have implications. When we act, we do so based on our beliefs. The question then is - what are we thinking, and how are we acting as a result of that thinking? What is the quality of our thinking? Where is it leading us? It is critical thinking that allows us to take command of the thinking we are doing so as to improve our teaching, our work, our relationships. We hope that you increasingly find ways to bring critical thinking to the front and center of your work and all parts of your life*

In Thinking is the Key, Johnson (1997:1) stated "good teachers prepare students for life.... They have the unique opportunity to model effective thinking techniques. The result produces life long learners who are more than good students. They are life long thinkers."

The ability to think critically and to reason well has been regarded as an important and necessary outcome of education. Educators are not alone

who recognize the importance of critical thinking. All the aspects of life—the demands of employment in a global economy, the survival of a democratic way of life, and personal decision making in a complex and changing society—require people who can reason well and make good judgments.

Learning only begins when teachers challenge students with real questions that demand a solution (Moeller, 2005), and critical thinking is best observed when students see the value in it and are self-motivated (Dellet, et al., 1999). Therefore, this study placed a high priority on helping students see and on teachers to trigger why critical thinking is important to them, and quickly applying it to interesting questions and relevant to their lives (Bomer, 2000), rather than spending a lot of instructional time on uninteresting abstract concept learning.

In short, CT is quite purposeful that it helps weed out prejudice and bias to allow well-reasoned views to take root in order to motivate proper action. Thinking is the foundation for all true education, education, then, should be assessed based on how well it develops the critical faculty in students. Sumner rightly argues that since all thinking leads to action, the ultimate aim of education should be good citizens. Sumner (1940) shared this view with Plato, who believed that those trained in rational thought would produce the best policy makers. However, Plato left this privilege/burden for the elite while Sumner believed that many could be trained in critical thinking; realizing, though, that it would require an overhaul of the educational system.

Paul argues (1995: 532)

*Education for critical thought produces higher order learning by helping students actively think their way to conclusions; discuss their thinking with other students and the teacher; entertain a variety of points of view; analyze concepts, theories, and explanations in their own terms; actively question the meaning and implications of what they learn; compare what they learn to what they have experienced; take what they read and write seriously; solve non-routine problems; examine assumptions; and gather and assess*

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*evidence. Students should learn each subject by engaging in thought within that subject.*

The research is clear that higher order thinking skills are important for all learners (ibid). Elder (2002: 22) says it would be a mistake to teach critical thinking skills to just those students considered more advanced than the typical learners. It would be a mistake to underestimate the capability of students who need to struggle more than others to learn ideas and concepts.

The researchers like Karen Dellett, Georgene Fromm, and Susan Karn with advisor Ann Cricchi (1999) have contributed foundational work in the area of teaching critical thinking and found out that "by incorporating thinking strategies in our classrooms we observed a shift in student behavior". The shift was demonstrated by an ability to make connections to prior knowledge, increased self-reliance, a new awareness of thinking capabilities on the part of the students, the ability to take a risk as they explored solutions to particular problems, and an emerging awareness of thinking strategies. Dellet, et al., found that a teacher's professional practices can be just as impacted by how students learn as student learning is impacted by how they learn to think. Teaching our students how to think critically, then, can not only optimize teachers' instruction by broadening the field of lessons but can also affect student learning by giving them the intellectual tools necessary to access content in dynamic ways. Therefore, the emphasis in teaching students how to think should be based on developing the intellectual traits that will allow them to generalize critical learning in order to access unfamiliar content. One of those intellectual traits is self-reliance, or 'self-direction'. Just as a body in motion tends to stay in motion, a brain that's trained to seek out the answer for oneself will tend to think this way.

Adding to the complexity of this topic, other researchers (e.g., Lippman, Perkins) believe in a systematic approach to thinking skills instruction. They suggest the need to infuse thinking skills instruction into all subjects at all grade levels. An example of this, Kassen (2001: 1) tells of Beyer's comprehensive, school-wide model with four component steps. These steps are:

- a. provide thoughtful questions in classrooms
- b. make thinking visible and explicit
- c. guide and support student thinking; and
- d. integrate instruction on thinking into subject-matter learning

Bomer (2000), who used journaling as a critical lens for teaching thinking to students of social studies considers three modes of teaching: demonstrations (modeling), assisted performance (cooperative learning), and reflective conversation (using guiding questions). Though the use of journaling is already an appreciated and established technique of experiential learning (Bennion & Olsen, 2002), Bomer's use of reflective conversation to get students to apply their thinking to issues outside themselves, paired with his process of investing students in their learning by making them an integral part of it, makes his study a notable contribution to the field of teaching critical thinking.

Barbara Guthrie (Using Bloom's Taxonomy) identified six levels of thinking present in the students' writing and speech— knowledge, comprehension, application, analysis, synthesis, and evaluation. She asserts that whether we teach it or not, critical thinking is going on in students' work, particularly in discussion; we only need to listen and contribute empathy and praise and we'll recognize it. Guthrie's study almost seems to ignore the issue of declining CT performance in students by insisting that they already have the skills; that teachers are just not trained to recognize them. However, the value of Guthrie's study is that it alerts researchers to the possibility that even in the absence of formal training, students may unconsciously develop rudimentary CT skills on their own. If so, CT training may not need to begin from ground zero, for some students. For them, educators may just need to identify and sharpen these pre-existing skills.

In one of her studies, Kristina Hedberg (2002) has provided an illustration of critical thinking instruction in the classroom that focuses on helping students' access prior knowledge when learning and analyzing new material (Chamot & O'Malley, 1994). Hedberg's study, then, insists that a significant part of learning critical thinking is that the learner should be self-involved. Also, teachers' attitudes have been shown to be an important factor in the effect of CT training. Researchers Edward Warburton and Bruce Torff have investigated the effect of teachers' beliefs about critical-thinking

activities on different populations of CT learners. This study is significant in that it warns instructors of the negative effects of prejudicial instruction inherent when instruction is guided by performance expectations. Therefore, CT instruction must be done by critically-conscious teachers who approach each student with their assumptions in check.

The time constraints of this study prevented me from embarking upon a comprehensive approach to teaching thinking skills. Paul (1989) sees thinking independently, or autonomous thinking, as the first of the affective strategies. This is thinking for oneself. My intention starts here. According to Swartz and Parks (1994), knowledgeable thinkers are better able to take charge of their lives and achieve personal advancement and fulfillment. According to them, independent thinking is foremost if they are to be able to judge information and situations critically for everyday problem solving and decision making. Every day, we all make many decisions using a variety of types of thinking. Students may compare and contrast friends, predict how much longer they will stand in the lunch line, or question why a certain assignment was given. They do not have to be taught this. When the decisions are bigger, such as buying an automobile, a quick and uninformed decision may lead to future disappointments and expense. Individuals must learn to think for themselves in both the small and large decisions of life.

As stated in Richard Paul's "Elements and Standards of Reasoning" (Paul & Elder, 1997), Paul argues that there are two essential dimensions of thinking that students need to master in order to learn how to upgrade their thinking. They need to be able to identify the "parts" of their thinking, and they need to be able to "assess" their thinking. Paul refers to the "parts" as the "Elements of Reasoning" which he assesses through the "Standards of Reasoning".

One of the best ways to approach teaching the parts of thinking is to foster questions (Elder, 2002). Nancy Johnson says there are many different kinds of questions and each is important. Balance needs to be achieved between the basic knowledge level, right/wrong answer questions and the divergent questions. She sees the most flexible and practical teaching technique as questioning. "Teachers who are good questioners motivate their students, stimulate high level thinking, encourage creativity, and enhance self concept in their students and themselves" (1990:4). By modeling this technique, students will better be able to make the transfer themselves. Elder's guide (2001) also shares with learners the questions

they should be asking themselves as they think fair-mindedly. Thus, they move from teaching of thinking to teaching for thinking.

Literature review supports the idea that all students, and especially third year students (reasons stated before) need to learn the skills for critical thinking. Those students tend to benefit greatly from teaching the skills in implicit and explicit manners. The definition of critical thinking is varied and wide. The importance of independent thought and the use of intellectual standards as they relate to all of critical thinking are explicitly highlighted. Finally, I have shown how using questioning techniques will guide the teaching of these skills as well as direct the thinking in real life application.

### **5. Critical Thinking Dimensions**

Here are two rudimentary CT dimensions that form the current study:

- a. Paul's elements of thought
- b. Paul's standards of thought
- c.

Elder&Paul's "Elements and Standards of Reasoning" (Paul & Elder, 1997). Also, see Gregory Bassham et al (2008:2-7).

#### **a. Paul and Elder's Elements of Thought (Reasoning) (1997):**

1. All reasoning has a Purpose. In order to understand some proposition, one must be able to clearly define its Purpose (e.g. to persuade, inform, etc.).
2. All reasoning is an attempt to answer some Question At Issue—e.g. to figure something out, to settle some question, to solve some problem. It is important to identify that Question. In order to understand the Purpose.
3. All reasoning is based on Assumptions. Effective thinking seeks to clearly identify the writer's assumptions and determine whether they are justifiable, and how they are shaping the author's point of view.
4. All reasoning is done from some Point of View. Clear thinking seeks to Identify the author's Point of View.
5. All reasoning is based on Information—e.g. data and evidence. Clear thinking seeks to identify the writer's Information, and make sure that all

information used is clear, accurate, and relevant to the question at issue. It also assess whether or not the writer has gathered sufficient information.

6. All reasoning is expressed through, and shaped by, Concepts and Ideas. Therefore, it's important to identify key concepts and explain them clearly. An example would be when discussing the topic of "love", to understand what the writer means by "love".

7. All reasoning contains Inferences or Interpretations by which we draw Conclusions and give meaning to data. It's important to only infer what the evidence implies.

8. All reasoning leads somewhere, or has Implications and Consequences. It is important to trace the implications and consequences that follow from one's reasoning, searching for negative as well as positive implications, considering all possible Consequences.

**b. Paul and Elder's Standards of Thought used to assess the Elements (1997):**

1. Clarity: Is the Element being considered Clear? For example, "Is the Purpose Clear? Or is it vague? Is the information Clear? Or is it ambiguous?" For instance, the Question "What can be done about the educational system in America?" is unclear. In order to address the question adequately, one would need to have a clearer understanding of what the person asking the question is considering the "problem" to be. A clearer question would be "What can educators do to ensure that students learn the skills and abilities which help them function successfully on the job and in their daily decision-making?"

2. Accuracy: Is the Element (e.g. Information) really true? (A statement can be Clear but not Accurate, as in "Most dogs weigh over 300 pounds").

3. Precise: Is the Element Precise? (A statement can be both Clear and Accurate, but not Precise, as in "Jack is overweight". We don't know how overweight Jack is—he could be one pound or 500 pounds overweight.)

4. Relevant: Is the Element Relevant? A statement can be Clear, Accurate, and Precise, but not relevant to the question at issue. For example, some

students believe that their grade should reflect the amount of effort they put into an assignment, though effort is usually irrelevant to the issue of whether or not an assignment is done properly.

5. Depth: Is the Element sufficiently Deep, or is it superficial?

6. Breadth: Is the Element sufficiently broad, or do we need to consider a wider scope of data? (E.g. "Are the Conclusions mentioned in a report exhaustive, or are there other possible conclusions the author fails to mention?")

7. Logic: Does the Element make sense? Is it sound? (E.g. Are the Assumptions Logical?)

This study is geared towards the design of "a new kind of school—one that will prepare students to succeed in the 21st century, not the 19th" Hughes (2000: 15-17). He proposes a learning environment that incorporates cross-content CT strategies in every classroom. Costa (1991:139) listed the following goals for students to meet the demands of the 21<sup>st</sup> century and the capacity for continued learning:

*How to learn; cooperation and team building, communicating with precision in a variety of modes; coping with disparate value systems, solving problems requiring creativity and ingenuity; enjoyment of resolving ambiguous, discrepant, and paradoxical situations; dealing with an over abundance of technologically produced information; taking pride in the craftsmanship of their products; and building personal commitment to larger organizational and global goals*

Adopting these new goals is necessary in order to change the curriculum and most importantly, the delivery system. Teachers can specially make the difference by presenting instructional strategies that will increase critical thinking skills. Henceforth, CT is an important factor in the success of the 21st-century individual, whether she's on the job or in school.

This CT condensed training program is designed not only to improve student thinking, but also to provide a framework to help teachers see how such a program has been used in the classroom, and how it can be used in their classrooms.

## 6. Critical Thinking: A Historical Overview

The intellectual roots of critical thinking date back to Socrates, who developed a method of probing questioning that forced people to justify their confident claims to knowledge. Socrates established that one cannot depend upon those 'in authority' to have sound knowledge and insight. He demonstrated that persons may have power and high position and yet be confused and irrational (Richard Paul, Linda Elder, and Ted Bartell, 1997:1)

He established the importance of asking probing questions before we accept ideas as being worthy of belief. His method of questioning is now known as "Socratic questioning" and is the best known critical thinking teaching strategy. Socrates set the agenda for the tradition of critical thinking, namely, to reflectively question common beliefs and explanations, carefully distinguishing those beliefs that are reasonable and logical from those which lack adequate evidence or rational foundation to warrant our belief (ibid)

Socrates was followed by the critical thinking of Plato (who recorded Socrates' thoughts), Aristotle, and the Greek skeptics, all of whom emphasized that things are often very different from what they appear to be and that only the trained mind is prepared to see through to their essence. In the Middle Ages, the tradition of systematic critical thinking was embodied in the writings and teachings of such thinkers as Thomas Aquinas (*Summa Theologica*). To ensure his thinking met the test of critical thought, Aquinas systematically stated, considered, and answered all criticisms of his ideas as a necessary stage in developing them (ibid:2)

During the Renaissance (15th and 16th centuries), a flood of scholars in Europe began to think critically about religion, art, society, human nature, law, and freedom. They followed up on the insight of the ancients. Francis Bacon, in England, was explicitly concerned with the way we misuse our minds in seeking knowledge. He recognized that the mind could not safely

be left to its natural tendencies. In his book, *The Advancement of Learning*, he argued for the importance of studying the world empirically (ibid)

Some fifty years later, in France, Descartes wrote what might be called the second text in critical thinking, *Rules for the Direction of the Mind*. Descartes argued for the need for a special, systematic disciplining of the mind to guide it in thinking. In the same time period, Sir Thomas Moore developed a model of a new social order, Utopia, in which every domain of the present world was subject to critique. His implicit thesis was that established social systems are in need of radical analysis and critique. The critical thinking of these Renaissance and post-Renaissance scholars opened the way for the emergence of science and for the development of democracy, human rights, and freedom of thought (ibid:4-5)

## 7. Pre-CT Training:

**Activity (A) of Assignment: Violence on TV**  
 Students were exposed to an essay on "Violence on TV". The writer argued that TV is the main source of violence since a high percentage of children get affected by action cartoons, films and most of the TV channels. The writer shows that the continued violent TV watching could cause a child into a kind of premature maturity and this definitely will bring about a massive destruction to his thinking behaviors. In effect, however, the writer suggested ways and precautionary procedures to be taken by the parents.

Later, the students were asked to identify the author's thesis, his/her supporting evidence, the background information s/he uses, and were asked to state three questions they would ask the author if s/he were present. After completing the assignment in a defined time, they were given the following in-class writing assignment.

The writer claims that **"As you can see, television violence can disrupt a child's learning and thinking ability, which will cause lifelong problems"**.

Stand with or against this statement. Write a well-developed argument and use carefully chosen evidence to support your reasoning.

Based on this argument, the students were given time to complete their assignments. The assessment was based on examining the five aspects of writing and analysis:

1. Clarity of writing
2. Analysis of author's argument
3. Use of supporting information
4. Organization
5. Grammar and syntax

The results are summarized as follows:

	Clarity	Analysis	Support	Organization	Grammar	Total
High Achievers	3	2	3	2	4	14
Mid-achievers	3	2	2	1	2	11
Low-Achievers	2	2	2	1	1	8

**Table 1- Activity 1- Assessment Summary**

Before the focused CT training, the result indicates that there is a clear-cut lack of CT skills in students' writing in the five areas of measurement. This, in effect, calls for improving these areas via the CT elements and intellectual standards that affect students' essay writing and shape their thinking abilities in a better way.

## 8. Focused Critical Thinking Training

In this particular area, the three CT basic pillars constitute the foundational work in this paper: *teaching why to think, teaching how to think, and teaching to think*. These three shape the reality of critical thinking. The most important thing in this study is to show the effect of CT skills to which students get much more power and thinking abilities

### Teaching why, how and what to think

It is important to teach our students why to think since the mere goal of attending college is not to learn but to think (2002:28). See also Moeller (2005) and Raths (1986). Learning only begins when teachers challenge their students with real, relevant and interesting questions rather than spending a lot of instructional time on uninteresting and abstract learning (Bomer 2000: 4). As Paul and Elder (2006:23) state "Thinking is driven by questions.

The quality of your questions determines the quality of your thinking. Superficial questions lead to superficial thinking. Deep questions lead to deep thinking. Insightful questions lead to insightful thinking. Creative questions lead to creative thinking". Critical thinking becomes topic in all knowledge and penetrates even into exams and in every educational field", also see Starkey (2004:137-150).

The focused CT training includes the following activities:

**2. Questioning Activities** with questionnaires that were distributed amongst the students asking them what they know about the term 'critical thinking' (See Appendix A). Most of the students believed they had been taught CT directly or indirectly, but the fact is that, and according to the researcher Richard Paul (1993), the students have not been trained to think critically, strategically and reason well, and even what is worse is that the teachers do not reason well.

However, it is not surprising that very few students have a good knowledge of what CT is. Most of the students' answers, of the first question in questionnaire or interview sheet (What is CT?, were for example (deep thinking or thinking deeply), (asking questions), (high level of thinking), (analyzing thinking), (reason), (evaluation). But when students got familiar with the rest of the questions, they were able to be much more specific. For example, when asked (what standards do you use when you evaluate someone's thinking? out of thirty students, twelve were able to mention at least two standards that match Paul's "elements and standards of reasoning". They were "logical, and "clear". Then, a question was raised "why is it important to think critically". Most of the students answers were "to understand how to learn", "to solve problems", "to understand life", "to understand others". One minded-student answered "to understand yourself". Apparently, no single student realized the importance of CT; in the sense that the students are lacking the general understanding of CT tools.

Meanwhile, the students were given a chain of thoughtful questions to elicit some answers. Some of those questions were:

**1. Killing is the Evils? wrong?** were wrong without mentioning why they are wrong. This is quite definite in normal thinking and they had no justifications for why they held to certain moral principles. Then, the researcher was introducing arguments in favor of violence, killing and lying.

The students were found intellectually baffled and have no reasons of whatsoever in any ethical questions. However, some students who found that these activities are commonplace got a glimpse of the importance of CT and the latter became a real life and not just an abstract thing.

The second activity was intensely based on students' engagement for writing questions for discussion. Some of them were:

**Who is more rightable the dog? the power cut, the Iraqi government or the people?**

**Is the job of a soldier good or bad?**  
The questions triggered the students' minds and motivated them to look for thoughtful responses. Besides the brief lectures about the importance of CT, a number of workshops have been carried out for all students in general and the test-takers in particular. Needless to say, this led-lecture promoted the students' understanding of CT and made them able to answer every single question through critical reasoning, even about Iraqi football team.

The students were ready to reason well and learn critically and systematically.

After students got familiar with what critical thinking is, the researcher highlights the importance of CT by introducing Paul's elements and standards of reasoning. The researcher handed out a pie chart listing the Paul's conception of CT, the elements and standards were not defined for the students rather they were put into groups and asked to develop and draw their own conclusions about each concept based on their prior knowledge of the definitions of the words Hedberg (2002) and Painter (2000). The group shared their own understandings and definitions in front of the class. (See appendix B)

In the next meeting, every student has got the CT pie chart and kept practicing CT on every assignment. In doing so the class was engaged in a discussion. For awhile, the students were divided up into two large groups, women's liberation and anti-women's liberation groups. Each took a place in the class. Both groups were given ten minutes to write their reasons for holding such position. Later on, both cross examined each other by using Paul's elements and Standards of reasoning (E&S). The class was having a lot of fun since each group tended to assess why the other group held the views they held (i.e. purpose, information, point of view, issues at question, etc.) and whether those reasons stood up to assessment (i.e. logical? Accurate? Clear? Relevant?). They took more delight in their new CT tools that would allow them to assail their peer's positions. As a daily CT training warm up,

"quick writing paper activities" were hugely used at the beginning of each class meeting. These questions and the like developed student's thinking about questions relevant to their assignments (Ghahremani-Ghajar & Mirhosseini 2005). For instance, on the day of the first historical turning of the Iraqi elections that was held after the engraved régime, the students were asked to explain what was going on. In doing so, they used at least three elements and two standards to assess.

## 9. Post- Critical Thinking Training

### *Activity(2): 2<sup>nd</sup> Assignment: Value of Human Life 1*

Barbara Guthrie (2000) has shown, in one of her researches, that students give subtle hints about what they want to learn, and that taping a lesson and viewing it in retrospect can help a teacher decode these subtle, often missed messages. The classroom session has been videotaped in which the students and researcher talked about really interesting "controversial" topics. Because some students are too socially reserved to speak up during class, reviewing this tape allowed the researcher to pick up on some of these cues (e.g. quickly sitting upright, quick glances, etc.), and consider his non-verbal feedback when designing the options for the lesson that would lead into Assignment 2. The researcher's hope was to avoid the lack of interest in the students, believing that it was responsible for the modest gains among some of the groups.

To encourage the trait of intellectual autonomy, the students were given four choices of what to study, based on the in-class discussion. The four choices were (see Appendix C):

1. Value of Human Life
2. Taking Bribes
3. Human rights
4. Iraqi Constitution and the Value of Human Life

The students were asked to rank these choices in order of preference; that is to say, starting from the most important to the less important one. By an overwhelming majority, the students chose topic one—Value of Human Life. The texts for this unit were Hamlet's famous "To be or not to be" soliloquy (Act III, scene 1) and an excerpt from Singer and Mark's views on the victims of euthanasia'. For the Hamlet section, the

students were again put into their groups and given the text to analyze. The groups were given the assignment of answering two main questions:

- (a) *What is the question?* (based on the opening line "To be or not to be, that is the question")
- (b) "What is Hamlet's view of the Value of Human Life?"

Utilizing Paul's elements and standards as their powerful analysis tool, every group was able to decipher the text. Initially, the students were resistant to reading Shakespeare. Their prejudice said that his language is too difficult. But with a little encouragement, the students got about the task of analyzing the text. They were told to use all eight Elements as their analysis tool to figure out what the argument of the passage was. After they figured out what Hamlet was saying, the groups then had to assess his argument (that life is nothing but pain and suffering) using the Standards.

At the end of the lesson, the majority of students had fully grasped the soliloquy. One student, who was among the most vocal opponents of reading Shakespeare, was found after class explaining the soliloquy to his colleagues. They acknowledged that once they understood Shakespeare, their attitude towards Shakespeare changed.

Next, the students were given an excerpt from Singer and Mark's the value of human life and euthanasia (The Value of Human Life, 1990). The essay describes their view on the victims of euthanasia and how high do we value human life? where those patients (poor people, mentally disabled, and the elderly) stay along period of time at the hospitals in which a lot of money to run tests and medicine are spent. Doctors would target those individuals by either killing or by any other means for their less desirable role in society and are said to be taxes trouble-makers. In the next class meeting and depending on the same analytical basis, the students were instructed to find out what Singer and Mark's view of the Value of Human Life is. Meanwhile, the class discussed the two texts, sharing ideas and debating the issues raised by them. They were then encouraged to develop an outline that could be used in writing their next in-class writing assignment in a compare and contrast form. Working together, they developed the outline represented by Appendix D.

For their assessment, the students were given a copy of the outline they had developed, and the writing prompt represented by Appendix E. In short, they were to compare and contrast Hamlet and Singer and Mark's views of

the 'Value of Human Life' (with reference to the Elements), and assess them using three of the Standards.

In accordance with the established classroom practices, the students were given one hour in the next lecture to complete the writing assignment, which had to be done by hand. The results were so impressive that the researcher increased the point value of the essay.

Depending on the five areas of measurement in writing, the results are summarized as the following table shows:

	Clarity	Analysis	Support	Organization	Grammar	Total
High Achievers	4	3	3	4	4	18
Mid-achievers	3	3	3	2	4	15
Low-Achievers	3	4	3	3	2	15

**Table 2- Activity 2- Assessment Summary**

First, it's worth pointing out that nearly all of the students improved from assignments one to two, and not one student's performance in any of the five measured areas declined. Though many remained static, the general outcomes seen in assessment two were remarkable.

What was encouraging is the class-wide growth in the five key areas between the first and second assignments. What we can see is that every area of analysis improved and relatively increased in number.

### **Activity (3): Value of Human Life 2**

Again, 'the Value of Human Life' is under microscope. Using all of what they had learned in terms of critical analysis, the class would now apply their thinking to one of the most hot-topics and controversial issues in Iraq, the Iraqi constitution and the Value of Human Life.

In the first day of the meeting, the class was given a short introduction to the Iraqi constitution in general and some selected constitutional items (rights and responsibilities) in particular. To begin, the students were put into their groups, and after a led-lecture briefing, they were given excerpts of the selected constitutional items written in English. Some selected students then were asked to gather information, which they then took back to their groups.

The next class meeting, the students were again put into their groups, after which the class was engaged in a discussion using their thinking skills to uncover their knowledge. After that, the students were given the text. They were given very little direction on how to approach the constitutional items. They were simply told, "OK, get to work on it... use your Elements and Standards". The students used half an hour to uncover the text writers' Purpose, Point of View, etc... In reading this short essay, the students went through the text and answered the following questions:

- ✓ Who wrote the Iraqi constitution? Are they authentic?
- ✓ What is the purpose of the constitution writers in this particular field? Is their purpose clear?
- ✓ What is their point of view? Is their point of view logical if applied to real life?
- ✓ What information they use in supporting their view? Is their information accurate?
- ✓ Is their information sufficiently broad?

The following class meeting, the students were again engaged in a discussion about the whole issue. They were instructed as ("OK, get to work on the articles written in the constitution draft... use your Elements and Standards"). The students used the entire period to complete the task.

Following the strategy from Assignment 2, the students were given a modified but essentially identical outline to the one they used on the Hamlet/Singer and Mark's assignment. The results were similarly encouraging, see (appendix F)

The results examined the five aspects of writing and analysis as shown in the following table:

	Clarity	Analysis	Support	Organization	Grammar	Total
High Achievers	4	5	5	5	5	24
Mid-achievers	4	3	5	5	3	20
Low-Achievers	5	4	4	3	4	20

**Table 3- Activity 3 - Assessment Summary**

Once again, the class as a whole, and as individuals, exhibited encouraging gains, posting improvements in all areas of the rubric assessment for the first time since the research began. The students improved in Clarity, Analysis, Support, Organization, and Grammar.

## 10. Findings and Concluding Remarks

The purpose of this study was to determine if by explicitly teaching critical thinking skills, third year students would move from being naive about their thinking, and from being self-absorbed, to taking ownership of their thoughts. In this study I focused on the affective skill of thinking independently, while applying the intellectual standards of clarity, accuracy, relevance, logic, and fair-mindedness. I used a "thinking of thinking" approach. The data suggested that teaching critical thinking skills does have a positive impact on students' awareness of their thinking.

Throughout the treatment students were highly engaged in the activities. The before-focused CT passing through the focused training to after focused training indicated a basic understanding and application of the intellectual standards. The three tables show a clear average increase for the number of the students. Students went from not using the language of critical thinking to using it frequently as a result of greater understanding. Students applied the terms to themselves while looking inward.

This suggests that measuring critical thinking skills is not easily done. As it is a subjective area to evaluate, it is difficult to quantify the results of this study. Throughout this study, students were presented five intellectual standards of critical thought, practiced those skills in a variety of situations, and have been asked to apply them to a real situation. I do believe it is possible to teach these skills and see improved awareness and application of critical thought in my students. I believe the pre- and post-assessments, along with condensed CT training, support this learning. However, to my understanding, this study is not perfect but challenging in as far as teaching methodologies, that brings forth an innovative lively academic topic and classroom instruction.

## 11. Recommendations for further research

If education is to act as a force for positive individual and social change, then critical thinking must be at the core of the curriculum; the underlying concept on which learning is constructed as opposed to something merely added to the existing curriculum. In order for this to

happen, however, networks of people concerned with the problematics of human thinking and practical ways to improve it must exist. Researchers, practitioners, and administrators must find common ground on which to rethink approaches to teaching and learning. I believe that a conception of critical thinking, that is based on the consistent explication and application of essential concepts that work within and move across disciplines, coupled with the consistent use of minimum sets of time-tested teaching and learning strategies, is a necessary first step toward improving the general quality of our thinking and lives.

Education, in general, needs to provide students with training in critical thinking and instruction in teaching for critical thinking. If educational institutions wish to do more than pay lip-service to the importance of critical thinking, they should consider providing their faculty with professional development workshops of at least twelve instructional hours using Paul's model or another proven approach to teaching for critical thinking.

Beyond initial training to teach for critical thinking, instructors need ongoing support as they learn to think more critically about the content of their courses and the methods they use to teach them. Changing course materials and methods so that students are challenged to think critically requires much time and effort, and teachers and instructors will need compensated time, as well as administrative and peer support, to implement this model on a broad scale. The challenges are great, but the results will be worthwhile and rewarding for instructors, students, and society.

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## **Appendices**

### **Appendix A: Critical Thinking Interview Profile**

Thank you for agreeing to this interview. The purpose is to look into your development as

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a student and thinker. More particularly, the purpose is to determine the extent to which

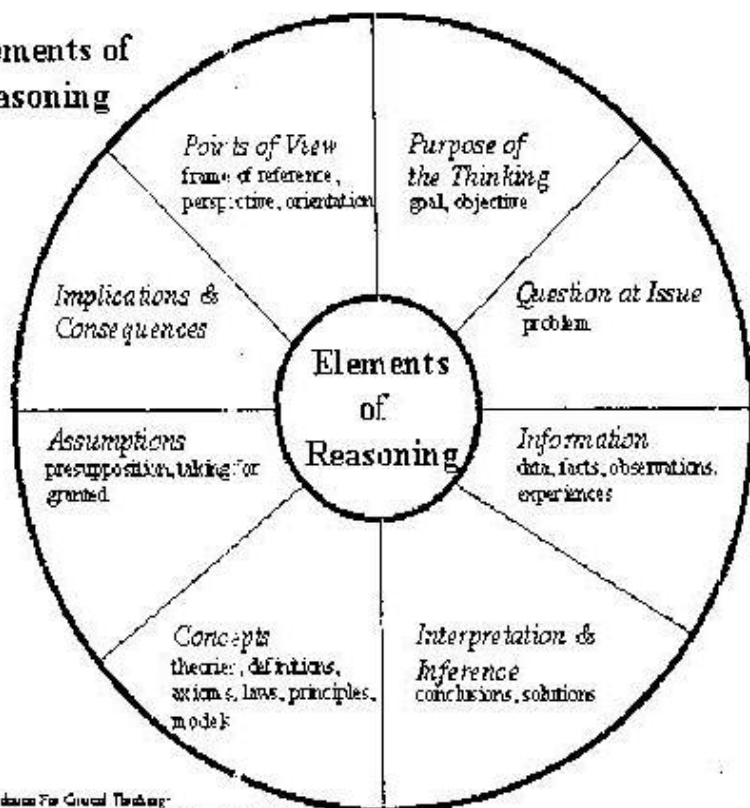
the tools and language of critical thinking have come to play an important part in the way

you go about learning, in school and in everyday life.

- What is critical thinking?
- Are there any components of critical thinking?
- If so, what are they?
- If you were asked to analyze thinking, how would you do so?
- What standards do you use when you evaluate someone's thinking?
- What is your favorite subject and how does critical thinking apply to it?
- How does critical thinking apply to the study of science?
- How does critical thinking apply to the study of mathematics?
- How does critical thinking apply to the study of literature?
- Could you give me some examples of your use of critical thinking in your life?
- To what extent have your teachers encouraged you to think critically? Explain.

### ***Appendix B: Elements and Standards of Reasoning***

**Elements of Reasoning**



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**Universal Intellectual Standards**

...which are applied to the **Elements of Reasoning** (above)

Is the statement **CLEAR**?

Is the statement **ACCURATE**?

Is the statement **PRECISE**?

Is the statement **RELEVANT**?

Does the statement have **DEPTH**, or is it superficial?

Does the statement have **BREADTH**, or is it too narrow?

Is the statement **LOGICAL**, or are there contradictions in it?

**Appendix C: Choices for Assignment 2**

Rank the following topics from what *most* interests you (1) to what *least* interests you (4).

### **Value of Human Life \_\_\_\_\_**

What does it mean to 'be alive'? Is human life valuable? Is it more valuable than animal life? Than plant life? Or not? What you think about the value of human life will have a lot to do with how you view and treat people. What's your view? Why?

### **Taking Bribes \_\_\_\_\_**

What is a bribe in its broader and narrower sense? Why do people bribe? And are only rich people bribe? What is your view?

### **Human Rights \_\_\_\_\_**

What is 'human rights'? Is it universal? Do all people share the same universal human rights? What do you think your rights are? Are they valid or not? Besides your rights, what is the counterpart? How can a nation fulfill its rights? Are there any rights at your country? What do you think? Why?

### **The Iraqi Constitution and the Value of Human Life \_\_\_\_\_**

What do you know about a constitution? What are the articles related to rights and responsibilities? Do you think the Iraqi constitution is as the same as those in the world? Is it ideal and applicable in Iraq?

If it compared to others, what are the sort of things you can pick them up?

Are you convinced with your constitution applicability in your land?

### **Appendix D: Sample Outline 1**

#### **Value of Human Life**

Hamlet vs. Singer and Mark

*Recommended Outline:*

I. Introduction: Explain Hamlet's view vs. Singer and Mark's view

A. Hamlet's view is:

B. Singer and Mark's view is:

II. Hamlet's view of the Value of Human Life is:

A.

B.

C.

D.

III. Singer and Mark's view of the Value of Human Life is:

A.

B.

C.

D.

IV. Assess both views

A. Hamlet's view:

1. Accurate? Why/Why not?

2. Logical? Why/Why not?

3. Have sufficient Depth? Why/Why not?

B. Singer and Mark's view:

1. Accurate? Why/Why not?

2. Logical? Why/Why not?

3. Have sufficient Depth? Why/Why not?

V. Conclusion—summarize your argument

#### **Appendix E: Sample In-Class Essay Prompt 1**

Value of Human Life

Hamlet vs. Singer and Mark

Writing prompt:

In a well-organized and detailed essay, compare and contrast Hamlet's view of life with Lance Singer and Mark's view of life. Use specific references from the texts

Finally, using the Universal Standards of Reasoning, assess both views—are they accurate, logical and have sufficient depth?

#### **Appendix F: Sample In-Class Essay Prompt 2**

Value of Human Life

The Iraqi Constitution and the Value of Human Life

Recommended Outline:

I. Introduction: Explain the articles related to human rights and responsibilities

A. The text writers' view

B. your view

II. How does the constitution look at the people's Value of Human Life?

A.

B.

C.

D.

III. How do people look at the constitutional articles:

A.

B.

C.

D.

IV. Assess both views

A. the constitution writers:

1. Accurate? Why/Why not?

2. Logical? Why/Why not?

3. Have sufficient Depth? Why/Why not?

B. People's view:

1. Accurate? Why/Why not?

2. Logical? Why/Why not?

3. Have sufficient Depth? Why/Why not?

V. Conclusion—summarize your argument