M. GÜNDÜZ

# THE EFFECTS OF CRITICAL THINKING BASED INSTRUCTION ON TURKISH EFL STUDENTS' CRITICAL THINKING DISPOSITION LEVEL, CRITICAL READING SELF EFFICACY LEVEL, ENGLISH WRITING PERFORMANCE AND OPINIONS ON CRITICAL THINKING

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**Mine GÜNDÜZ**

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Approval of the Graduate School of Educational Sciences

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## ABSTRACT

THE EFFECTS OF CRITICAL THINKING BASED INSTRUCTION ON TURKISH EFL STUDENTS' CRITICAL THINKING DISPOSITION LEVEL, CRITICAL READING SELF EFFICACY LEVEL, ENGLISH WRITING PERFORMANCE AND OPINIONS ON CRITICAL THINKING

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The present experimental study aims to find out the effects of critical thinking-based instruction on the critical thinking disposition, critical reading self-efficacy levels, L2 critical writing performance of EFL learners. Besides, the present study aims to investigate the effects of critical-based instruction on the opinions of experimental group students. Data were collected from 26 EFL Turkish students, studying at a preparatory school of a private university in Istanbul, Turkey. With a total of 26 EFL students, classes were assigned as the experimental group (N=13) and control group (N=13). The experimental group received critical-based instruction in the integrated skills lesson while the control group received traditional instruction. This study lasted 4 weeks. To collect the data both quantitative and qualitative instruments were used. Quantitative data were gathered through California Critical Thinking Disposition Inventory- Turkish (CCTDI-T) (Kökdemir, 2003), Critical Reading Self-Efficacy Scale (CRSES) (Küçükoğlu, 2008) and students' opinion essays. Qualitative data were collected via definitions of students on critical thinking in the experimental group. The results coming from quantitative data indicated that there was no statistically significant difference between the groups in terms of their perceived CT disposition, critical reading self-efficacy level and L2 critical writing performance. The results

coming from the qualitative data showed that there was a difference between the experimental group students' pre- and post-definitions on critical thinking.

Keywords: Critical Thinking, Critical Thinking Skills, Critical Thinking Dispositions, Critical Writing Performance, Critical Thinking in ELT

# ÖZ

ELEŞTİREL DÜŞÜNME TEMELLİ EĞİTİMİN İNGİLİZCE DİL EĞİTİMİ ALAN TÜRK ÖĞRENCİLERİN ELEŞTİREL DÜŞÜNME EĞİLİMLERİ, ELEŞTİREL OKUMA ÖZYETERLİK DÜZEYİ, İNGİLİZCE YAZMA PERFORMANSLARI VE ELEŞTİREL DÜŞÜNME FİKİRLERİ ÜZERİNE ETKİLERİ

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Bu çalışma, eleştirel düşünme temeli öğretimin İngilizce dil eğitimi alan öğrencilerin eleştirel düşünme eğilim seviyeleri, eleştirel okuma özyeterlik düzeyi, eleştirel yazma performansı üzerine etkilerini ve deney grubu öğrencilerinin görüşlerine etkisini araştırmayı amaçlamaktadır. Veriler, İstanbul'da bulunan bir özel üniversitenin hazırlık okulunda dil eğitimi alan 26 Türk (EFL) öğrencisinden toplanmıştır. 13 öğrenci deney grubuna, 13 öğrenci kontrol grubuna atanmıştır. Deney grubu öğrencileri eleştirel tabanlı öğretim alırken, kontrol grubu geleneksel temelli öğretim almıştır. 4 hafta sürmüş olan çalışmada hem nicel hem nitel veriler toplanmıştır. Nicel veriler Kaliforniya Eleştirel Düşünme Eğilim Ölçeği Türkçe versiyonu (Kökdemir, 2003), eleştirel okuma özyeterlik ölçeği (Küçükoğlu, 2008) ve hazırlık dil öğrencilerinin komposizyonları, yoluyla elde edilmiştir. Nitel veriler deney grubu öğrencilerinin eleştirel düşünme üzerine tanımları yoluyla toplanmıştır. Elde edilen nicel veriler, eleştirel düşünme temelli öğretim yönteminin, öğrencilerin eleştirel düşünme eğilimleri ile eleştirel okuma özyeterlik seviyeleri ve İngilizce yazma becerilerinde istatistiki açıdan anlamlı farklılıklara yol açmadığını göstermiştir. Elde edilen nitel veriler ise, deney grubu öğrencilerinin eleştirel düşünme hakkındaki tanımları arasında bir fark olduğunu göstermiştir.

Anahtar Kelimeler: Eleştirel Düşünme, Eleştirel Düşünme Becerisi, Eleştirel Düşünme Eğilimleri, Eleştirel Yazma Performansı, İngilizce Dil Öğretiminde Eleştirel Düşünme

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| | |
|---|---|
| CCTDI-T | California Critical Thinking Disposition Inventory-Turkish |
| CRSES | Critical Reading Self-Efficacy Scale |
| CT | Critical Thinking |
| CR | Critical Reading |
| EFL | English as a Foreign Language |

# Chapter 1

# Introduction

This chapter presents statement of the problem, purpose of the study, along with the research questions and its significance.

## 1.1. Statement of the Problem

Critical thinking has been under the scope of educators for many reasons for many centuries. In the past, most of the educators would try to teach 'how to think' indirectly or implicitly due to the importance given to mainly teaching information and content (history, physics, geography etc.). However, in recent times, teaching 'critical thinking skills' implicitly has been highly questioned, because most of the students are found not to able to acquire critical thinking skills as expected (Fisher, 2001). As a reason why students are not able pick up critical thinking skills expectedly, Malmir and Shoorcheh (2012) pointed out that students are not born with critical thinking skills, that's why learners may experience difficulties in acquiring these skills during their education life. Fisher and Scriven (1997) added that since education requires students to cope with the problems of daily life, they need to be taught how to think critically. Therefore, educators are supposed to teach more 'how to think' skills instead of 'what to say' skills, because students must criticize information and learn to improve their skills to judge information, evaluate alternative ways and have a discussion with logical reasons in a critical way. (Ku, 2009).

Paul and Elder define critical thinking as "the art of thinking about your thinking while you are thinking to be able to make your thinking better: more accurate, more clear, more justifiable" which implies that the act of thinking is done consciously, so it is a teachable skill (2002, p. 316).

On the other hand, Willingham (2008) claim that;

> People who have searched for teaching critical thinking have thought that it is a skill, like riding a bicycle, when you learn it, you can use it in any circumstance. Cognitive science research demonstrates that thinking is not that kind of skill. The process of thinking is encircled with the content of thought (which means, field knowledge). In this way, if you remind a student to 'analyse a problem from different perspectives' often, he will learn that he should do so, but if he doesn't know a lot about that problem, he can't think about it from different perspectives. You can teach students maxims about how they should think, but without background knowledge and practice, they presumably will not be able to apply the advice they remember. It is not useful to try to teach factual content without giving students chances to practice using it, it also not useful to try to teach critical thinking devoid of factual content (p. 21).

Therefore, when educators want to teach critical thinking skills, they also need to provide enough knowledge and practice chance to their students. In other words, thinking critically can be taught when it is integrated with the content and practice, and when these appropriate conditions are met, teaching critical thinking becomes more possible. Also, Çavdar and Doe (2012) states in the same direction that critical thinking skills can be improved via classroom activities which enable students to practice these skills, and some of the activities suggested are: classroom debates, statistical data analysis, simulation etc.

In the 21st century, doing activity in and out of the classroom, and providing information to students is not an issue (thanks to books, newspapers, websites, blogs, social networking tools); however, to benefit from activities and to make a critique and reflection upon information is an issue for learners; therefore, it is also an issue for many educators and researchers. This study tries to examine if CT skills can be taught in the context of EFL through critical thinking based instruction, and activities.

## 1.2.Purpose of the Study

Education stresses the necessity of CT skills both for academic success and for daily life. Students are supposed to question the validity of the ideas in the texts, books or judge the opinions of other people. In other words, students are expected to scan all type of knowledge by rethinking instead of copying them as they are (Alagozlu, 2007). We are surrounded by all kinds of information tools which are easy to access all the time. Whenever we need to learn something, we can reach them easily. However, the information, itself, is not enough when it comes to education. In the past, just acquiring the knowledge, which was mostly transferred from teachers or books, might have been enough, but today one of the purposes of the education is to provide learners critical perspective. Learners are expected to learn the knowledge as a first step and later, they are expected to analyse it through questioning, make reasonable judgements about it through experiences and research, seek alternative ways to solve problems related to that knowledge. Briefly, learners are expected to think critically and show these critical ideas in educational setting, especially in written form. The study aims to investigate to what extent critical thinking is teachable and to what extent it can be instructed more specifically. That's why, this study aims to investigate the effect of critical thinking based-instruction on EFL learners' perceived critical thinking disposition levels, L2 critical reading self-efficacy levels, and L2 critical writing performance.

## 1.3. Research Questions

The following research questions are addressed in the present study:

**1.** Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of their:

**a.** perceived critical thinking disposition level?

**b.** L2 critical reading self-efficacy level?

**c.** L2 critical writing performance?

**2.** Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of

their perceived critical thinking disposition level in the delayed post-test?

3. Is there a change in the experimental group students' understanding of critical thinking at the end of the study?

### 1.4. Significance of the Study

To my best knowledge, there are not enough experimental and descriptive critical thinking studies done in Turkey and abroad in the field of ELT. The studies, particularly descriptive studies, in the literature try to give critical thinking perspective through only reading activities, and they expect to find these reformed ideas in the writing assignments. In this study, critical thinking strategies are not only integrated into the reading skill, they are also integrated into the listening and speaking skills in order to empower of the CT of EFL learners. According to Tang (2016), the philosophy of critical thinking ought to be embedded to every single step of English teaching: listening, writing, reading and speaking.

On the other hand, the experimental studies in the literature were done especially in the field of science and math. English Language Teaching field is generally perceived as the practice of language skills from receptive (reading, listening) to productive (speaking, writing). However, in science, math or in any other field and course if the instruction is given in English, students are expected to organize reasonable words and make sense to discuss in the classroom (Huang, 1998). Therefore, as Tang (2016) stated "priority in English language teaching should be given to the cultivating of students' creative ability and critical thinking skills rather than only practice of the language skills". Also, Oral (2009) stated that "critical approaches in language teaching are fundamentally important. Otherwise, language teaching would be missing a crucial point in its responsibility to prepare students for the global community" (p.66). By considering these necessities, this experimental study was conducted in the field of ELT.

In contrast to many studies, in this study, the instruction is given explicitly to the experimental group instead of giving it implicitly. In other words, the learners are all the time aware of the reasons why they are doing all the activities. Explicit instruction

demonstrates that when CT skills; such as metacognition (thinking about one's thinking), are clearly taught, using guided instruction in which the student is active and central in the learning experience, those skills are enhanced (Kuhn, 2000; Moseley et al., 2005).

# Chapter 2

# Review of Literature

This chapter presents the definition of CT in different disciplines: philosophy, cognitive psychology, politics, and education. After the definition of critical thinking part, it continues with different assessment tools of CT skills and dispositions. At the end of this chapter, there are summary of the descriptive and experimental studies that held both in Turkey and abroad.

## 2.1. Defining Critical Thinking

The word of 'critical' comes from the Ancient Greek 'kritikos' which means able to discern, of or for judging. There are two cognate nouns of 'kritikos' which strengthens the meaning. The first cognate noun 'kriterion' means a court, for judging and the latter cognate noun 'krisis' means power of analysis, judgement. The cluster of meanings supports that critical thinking is something more than having an intellectual thought (Liddell & Scott, 1889, p. 450-451 as cited in Coney, 2015, p.522).

Critical thinking, beyond any doubt, is the most required and important skill of 21st century people. Such a thinking, clearly stated in literature and above, has always been a crucial skill which originally dates to Ancient Greek time, 2.000 years ago. However, the time, which we are living in it right now, demands that skill from each being more than ever, since this is the time when we are surrounded by technology, technological knowledge and technological societies. Therefore, it is hardly surprising that critical thinking is a popular subject in all disciplines; therefore, critical thinking has been defined by researchers in various fields. In this chapter, critical thinking will be defined in the disciplines of philosophy, cognitive psychology, politics and education.

**2.1.1. Definition of CT in philosophy.** As the beginning of critical thinking goes back to the times of Ancient Greek, the first philosopher who defined critical thinking, also is regarded as the founder of critical thinking, is Socrates. During his time, Socrates made people think about their thinking by questioning, which is today known as Socratic Questioning Method. His questioning method was persistent and sarcastic in order to make people understand that they did not quite know what they thought knew. Socrates discussed that the attitude of desiring one's opinions to be always accepted and not questioned is intellectually stagnating and is a sign of ignorance. He described the wise person as someone who is always willing to learn, explore, expand her knowledge by assuming that the only thing she knows that she knows nothing. However, his sarcastic questioning method angered many people during that time and eventually he was killed in 399 B.C. by Athenians. (Özmen, 2008, p.112; Ikuenobe, 2001, p. 325)

After Socrates, Plato, Aristotle, and many other Greek philosophers tried to emphasize that things are generally different from what they seem to be. In other words, they tried to emphasize that what we see can be delusive sometimes, and this delusiveness can be made more clear and reasonable by searching the reality beneath the surface which means by thinking critically.

In the middle ages, critical thinking became to be seen in written forms, and critical thinkers as Thomas Aquinas, influential philosopher during this time, stressed both reasoning and reasoning systematically. Moreover, Aquinas stated that critical thinkers do not always reject all the beliefs, they reject the beliefs which are lack of logical basis.

During the Renaissance ($15^{th}$ and $16^{th}$ centuries), many prominent scholars, some of whom were Colet, Erasmus and More, in Europe started to think about religion, human nature, art, law, society, and freedom in a critical way. These scholars, following their ancestors' insight, thought that these human domains needed to be analysed and criticized. Some other scholars reflected the necessity of thinking critically on their books. Francis Bacon stated the significance of studying the world empirically in *The Advancement Learning*, which was thought one of the earliest written texts in critical thinking. Five decades later, Descartes argued the importance

of special systematic thought in his book, *Rules for the Direction of the Mind.* During the same period, Sir Thomas More, in his *Utopia*, put forward a new model of social system which criticized the established social order.

In 16th and 17th centuries, Hobbes and Locke, both were the critical philosophers of the time, had common views about critical thinking. Hobbes defended that everything in the life was supposed to be defined by proof and reasoning, and Locke argued that everyday life and thought needed to be analysed. Both philosophers thought that mind was an instrument that open new ways of learning.

During the 18th century, the time of French Enlightenment, there was a considerable contribution by critical thinking philosophers such as Bayle, Montesquieu, Voltaire, and Diderot who asserted that when human mind was disciplined by reason, it was more capable of realizing the nature of the social and political world.

In the 19th century, critical thinking was carried farther into the human social life especially by Comte and Spencer. Critical thinking was implemented in many fields like economy, biology, psychology, and language and it led to many improvements in these fields. When critical thinking was implemented to the capitalism problems, it led to the searching economic and social critique of Karl Marx. When critical thinking was implemented to the biological life and the history of human culture, it produced Darwin's *Descent of Man*. When critical thinking was implemented to the unconscious mind, it is reflected in the studies of Sigmund Freud. When critical thinking was implemented to language, it created Linguistics field.

In the 20th century, critical thinking had much more explicit formulation, and during this time an anthropological and social study, *Folkways* by Sumner, highlighted that only critical thinking can overcome delusions and misconceptions in the life, and defined critical thinking as;

Criticism is the examining of propositions of any kind which are offered for acceptance, in order to determine if they account for reality or not. The critical faculty is an outcome of training and education. It is a mental habit and power. It is a main

condition of human prosperity that women and men should be educated in it. It is our only guarantee against superstition, deception, delusion, and misapprehension of ourselves and our earthly circumstances (pp. 632, 633).

**2.1.2. Definition of CT in cognitive psychology.** Starting from the 20th century, critical thinking became to be defined in the perspective of cognitive field rather than philosophical field. Both disciplines, philosophy and psychology, contributed to the understanding of critical thinking; however, as philosophy associated with humanities, cognitive psychology associated with sciences, these disciplines became to contrast each other in terms of nature of 'truth'. In other words, while philosophers were interested in the logical reasoning, which focused on *how people should think*, psychologists were interested in thinking process, which focused on *how people think*. Psychologists stressed the importance of problem solving in the definition of critical thinking rather than reflective, logical thinking (Lewis & Smith, 1993). Since the process of thought is unobservable, psychologists tried to define critical thinking by observing behaviours and skills (e.g., analysis, interpretation, formulating good questions) that the critical thinkers can do (Bailin, 2002).

These observable skills were defined as higher order thinking skills, *reasoning and productive behaviour*, and lower order thinking skills, *learned behaviour* (Maier, 1937. as cited in Lewis & Smith, 1993, p.132). Newman (1990) stated the difference between higher and lower thinking skills from class observations and interviews with teachers, and according to experience of Newman (1990), lower thinking skills demand learners to apply mechanical, routine behaviours such as listing information, inserting number into the previously learned formulas while higher thinking skills challenge learners to interpret, analyse, or manipulate information.

Sternberg (1986) defined critical thinking as "mental processes, techniques people use to make decisions, solve problems, and learn new perspectives". Halpern (1998) defined this term as "the use of those cognitive skills or strategies which enhance the probability of a preferred outcome". Willingham (2007) defined the critical thinking as "perceiving both sides of a problem, being open to new proof that argue against your opinions, reasoning objectively, demanding that claims be backed

by proof, inferring and deducing conclusions from available facts, solving problems, and so forth" (as cited in Lewis & Smith, 1993, p.8).

**2.1.3. Definition of CT in politics.** In the 20th century, CT was not only under scope of cognitive psychology, but it was also important in the field of politics. During this century, critical thinking was required as a competence for critical participation in modern society and it referred to 'the capacity to realize social injustice' (Ten Dam & Volman, 2004, p. 360-362). Paulo Freire, Ivan Illich and Chomsky were the pioneers who emphasized the role of critical thinking in their works to raise the awareness of society about social injustice against any type of exploitation, either economic or political.

Freire (1993), Brazilian philosopher and educator, defined CT as "thinking-which realizes an indivisible unity between the world and the people and admits of no dichotomy between them-thinking which comprehends reality as process, as transformation, rather than as a static entity-thinking which does not separate itself from action, but permanently immerses itself in temporality without fear of the risks involved" (p.92).

Illich (1971), who supported de-schooling, criticized the education at schools and defined the critical nature of learning process as;

Schools are designed on the thought that there is a secret to everything in life; that the quality of life relies on knowing that secret; that secrets can be known only in orderly successions; and that only teachers can properly discover these secrets. A person with an educated mind conceives of the world as a pyramid of classified packages achievable only to those who carry the proper tags (p.34).

Similarly, Chomsky stated in his book, *Miseducation,* that schools do not educate the learners in the name of democracy. However, the main concern of democratic theories is how people can get the information, knowledge for communication and discussion to govern their lives effectively. Therefore, schools are the key mediums in the pursuit of a democratic society, and if these systems undermine

democracy then it becomes “difficult to conceive of a viable democratic society” (Chomsky, 2000, as cited in Ross, 2001, p. 2)

**2.1.4. Definition of CT in education.** Along with many disciplines given above, critical thinking is also defined and applied in the field of educational sciences. Until and in most of the 19th century, education was under pressure to encourage the ever-expanding industrial economy by establishing competitive meritocracy and preparing workers for vocational roles. Therefore, schools attempted to achieve cultural uniformity, and to educate dutiful citizens.

However, in the late of 19$^{th}$ century, and in the early of 20$^{th}$ century, a new term, progressive education movement, aroused and it has been used to describe ideas and practices that aim to make schools more efficient agencies of a democratic society. John Dewey, one of the progressive educators, supported diversity in skills, interests, ideas, needs, cultural identity, and ‘critical intelligence’ in education to enable people to realize and take part effectively in the affairs of their community in a collaborative effort to achieve a common good.

In 1956, Benjamin Bloom, with a group of educators, developed and introduced a framework, which is known as Bloom’s Taxonomy, for classifying educational goals and objectives. This framework consists of six categories of CT skills and these skills are categorized from lower-order thinking skills to higher-order thinking skills. The lower-order thinking skills consist of knowledge, comprehension, and application while the higher-order thinking skills consist of analysis, synthesis, evaluation (See Figure 1). The higher-order thinking skills are accepted as skills that the critical thinkers should have in educational sciences.

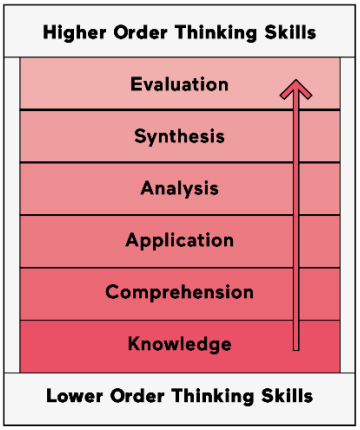


*Figure 1.* Bloom's taxonomy.

In 2001, Lorin Anderson, a student of Bloom's, revised the taxonomy with a group of cognitive psychologists, curriculum theorists, and instructional researchers and they published the new version of taxonomy (see Figure 2), in which action words (verbs) were used instead of nouns to name the six cognitive thinking skills. Another difference was the places of synthesis ('*creating'* in the new version), and evaluation ('*evaluating'* in the new version). In original Bloom's taxonomy, synthesis was the fifth higher-order skill; however, it, in the name of '*creating'*, is the sixth higher-order skill in the revised taxonomy. In other words, creating in the educational field is accepted as the highest critical thinking skill.

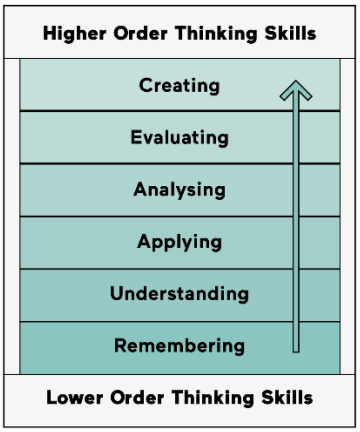


*Figure 2.* Bloom's revised taxonomy.

Another critical thinking definition, perhaps one of the most appropriate definitions, was done during The American Philosophical Association (APA) panel, in which 46 theorists, specialists, critical thinking assessment experts took part. After

the panel, Delphi report, which was two-year lasted study, was published, and in this report, critical thinking, with a consensus, is defined as;

> We understand critical thinking to be intentional, self-regulatory attitude which results in analysis, inference, interpretation, and evaluation, as well as explanation of the methodological, evidential, contextual, conceptual, or criteriological considerations upon which that attitude is based. CT is necessary as a tool of questioning. As such, CT is a liberating force in education and a powerful resource in one's individual and civic life. While not synonymous with good thinking, CT is a pervasive and self-rectifying human phenomenon (Facione, 1989).

According to Facione and the other scholars who attended APA panel, critical skills can be divided into two groups: 'Cognitive Critical Thinking Skills' (see Table 1) and 'Dispositional Critical Thinking Skills' (see Figure 3). According to Delphi Report, cognitive critical thinking skills were defined as the functions and the products of mind while thinking critically, and dispositional critical thinking skills were defined as the habits and tendencies of individuals while thinking critically.

Table 1

*Consensus List of Cognitive Skills and Sub-skills*

| | **CRITICAL THINKING SKILLS** | **CRITICAL THINKING SUB-SKILLS** |
|---|---|---|
| **1** | **Interpretation** | Categorization<br>Decoding Significance<br>Clarifying Meaning |
| **2** | **Analysis** | Examining Ideas<br>Identifying Arguments<br>Analysing Arguments |
| **3** | **Evaluation** | Assessing Claims<br>Assessing Arguments |
| **4** | **Inference** | Querying Evidence<br>Conjecturing Alternatives<br>Drawing Conclusions |
| **5** | **Explanation** | Stating Results<br>Justifying Procedures<br>Presenting Arguments |
| **6** | **Self-regulation** | Self-examination<br>Self-correction |

Being a critical thinker does not only mean having cognitive thinking skills; being a critical thinker also requires to have tendencies and habits of thinking critically.

Facione and Ennis shared the same ideas about separating skills and dispositions of critical thinking and Facione (2000) explained the reason of separating CT skills and CT dispositions as;

> To imagine a meaningful relation between CT skills and CT dispositions despises the task at hand. If we want our students to be both eager and able to engage in CT, and we do, then we must apply it both in school and professional development curricula, in our instructional assignments, and in our educational outcomes assessments. Why? Because being skilled does not mean one is disposed to use CT. And, being disposed toward CT does not mean that one is skilled (p.81).

In this respect, CT dispositions and CT skills are not regarded as same aspects of being critical thinker; however, as it is concluded from the statement of Facione (2000), dispositions and skills should be integrated to be a better critical thinker. Kitchener and King (1995) stated in parallel that: "CT skills and CT dispositions are mutually reinforcing; and, hence, should be explicitly taught and modelled together" (p.38).

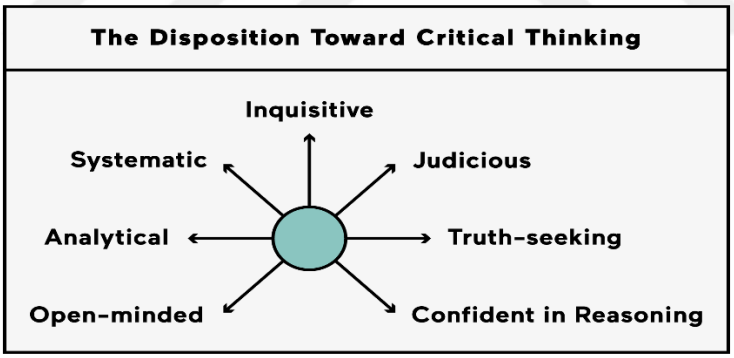


*Figure 3 A brief summary of CT dispositions stated in the Delphi Report.*

Critical thinking dispositions were later defined in detail by Facione, the director of the Delphi Project, and his colleagues. They (1995) specified seven distinctive characteristics of a critical thinker, i.e. *inquisitiveness, truth-seeking, analyticity, open-mindedness, self-confidence, systematicity*, and *maturity*. Below, the description of each characteristic is given in detail.

- *Open-mindedness* is the disposition of "being tolerant to opposing, different opinions and sensitive to the probability of one's own bias" (p. 6).

- *Systematicity* is the disposition of "being focused, orderly, organized, and attentive in questioning" (p. 7).
- *Analyticity* is the disposition of "prizing the using of questioning and the applying proof to solve problems, realizing possible conceptual or practical complications, and permanently being alert to the need to intervene" (p. 7).
- *Truth-seeking* is disposition of "being willing to search for the best knowledge in each context, courageous about asking questions, and honest and objective about pursuing inquiry even if the results do not encourage one's self-interests or one's opinions" (p. 8).
- *Self-confidence* is the disposition of "the belief one places in one's own questioning processes" (p. 8).
- *Maturity* is the disposition of "being judicious in one's decision-making" (p. 9).
- *Inquisitiveness* is the disposition of "one's intellectual curiosity and one's desire for learning even when the application of the knowledge is not readily apparent" (p. 6).

Ennis (1991) defined critical thinking as "logical reflective thinking which is focused on deciding what to believe or do" (p.476). Ennis explains critical thinking through many aspects which are all oriented around judgement.

Parallel to definition of CT by Ennis, Paul, Elder and Bartell (1997) explain critical thinking as thinking which explicitly aims well-founded judgement and; therefore, utilizes suitable evaluative standards in the attempt to specify the true worth, merit, or value of something.

### 2.2. Assessment of Critical Thinking Skills and Dispositions

Many standardized tests have been developed to assess the critical thinking skills or dispositions. Among the most widely used tests are the Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1925), the Ennis-Weir Critical Thinking Essay Test (1985), the California Critical Thinking Skills Test (Facione, 1990), and the California Critical Thinking Disposition Inventory (Facione & Facione, 1994).

The Watson-Glaser Critical Thinking Appraisal developed by Watson and Glaser (1925) to assess CT ability in five groups: assumptions, inferences,

interpretations, deductions, and evaluation of arguments. Each of these skills is tested separately and in total there are 80 multiple choice questions. The target audience is young adults and above.

The Ennis-Weir Critical Thinking Essay Test developed by Ennis and Weir (1985) to assess critical thinking ability in the argumentation context. The test is in the form of letter which consists of eight paragraphs. The test takers are supposed to read the letter and write an essay by evaluating the argument of each paragraph and the letter as a whole. The target audience is high school and college students.

California Critical Thinking Skills Test was developed by Facione (1990) to assess the test takers' core reasoning skills. It consists of 34 multiple choice questions ranging in difficulty and complexity. There is a short text in each question and after reading texts, the test takers are required to analyse or interpret the information, draw accurate inferences, evaluate the given reasons. The target audience is graduate and undergraduate students.

The California Critical Thinking Disposition Inventory was developed by Facione and Facione (1994) to assess seven attributes of test takers in terms of critical thinking: open-mindedness, systematicity, inquisitiveness, self-confidence, truth-seeking, analyticity, and maturity. It consists of 75 items and each item is given in 6-point Likert-type. The target audience is adult population.

The CCTDI was translated and adapted into Turkish by Kökdemir in 2003. In its Turkish version, there are 51 items under six subscales. It is one of the most common tools used in the studies conducted in Turkey. The target audience is adult population as in the original version. In the methodology part, broader information will be given about CCTDI-T as it is used in this study.

## 2.3. Descriptive Studies Conducted on Critical Thinking

In many countries, in the field of education especially, critical thinking skill has been searched many times as it is the most prominent skill of 21st century. That's why many educators and researchers conducted studies to investigate whether their students or participants have this necessary skill or not. Researchers carried out these studies nearly in every education degree and major, and most of these studies are descriptive. Some of these descriptive studies, which were held abroad and Turkey, are summarized and given in chronological order below.

Lampert (2007) conducted a study to find out the CT levels of undergraduate students at a state university in the USA. 141 participants took part into the study, they were compared and contrasted between the discipline groups: arts and non-arts students, and between the class rank groups: freshmen and juniors/seniors. Data were collected by California Critical Thinking Disposition Inventory developed by Facione (1992). The results of the study demonstrated that there was no significant difference among the four groups: arts, non-arts, freshmen, junior/senior. However, the junior/senior students' critical thinking levels were statistically high compared to the freshmen students. The study highlights the statement which was underlined in many studies that: when students spend more time at university, their critical thinking ability improves and gets higher.

Fahim, Bagherkazemi and Alemi (2010) carried out a study with the purpose of finding a relationship between test takers' critical thinking levels and their L2 reading performance. 83 female advanced EFL learners, who were learning English at one of the private institutions of Iran, could participate into the study. Data were gathered through Watson-Glaser Critical Thinking Appraisal (1980) and the reading section of the Paper-based TOEFL. The findings of the study showed that there was a significant relation between participants' performance on the reading section of PBT and their critical thinking ability. In other words, the students who had higher CT skills had better performance in reading section of PBT.

In another descriptive study, which was conducted by Nikoopour, Farsani, and Nasiri (2011), the purpose was to find out the relationship between critical thinking

and language learning strategies that used by Iranian students. The strategies were categorized into two types: direct and indirect strategies. The first strategy type was classified into three groups: memory strategies, compensation strategies and cognitive strategies. The latter strategy type was also classified into three groups: metacognitive strategies, social strategies and affective strategies. The participants of the study were 100 Iranian EFL undergraduate students studying in English Literature and English Translation at Azad University in Karaj. The data were collected in three weeks and two types of instruments were used to collect the data. The first instrument was SILL (Strategy Inventory for Language Learning, Version 7) (Oxford 1989) consisting of 50-item which was designed to collect information how learners learn English as a second or foreign language, and the other instrument was a critical thinking questionnaire including 30 items administered to evaluate the skills of analysis, inference, inductive reasoning and deductive reasoning. Among 100 questionnaires, 78 valid ones were taken into account. According the results, there was not a significant relationship between learning strategies and critical thinking abilities. In other words, utilizing language learning strategies improved the students' critical thinking skills.

Cosgrove (2011) conducted a study at a state university in England with the purpose of finding to what extent the Oxford tutorial, which is a pedagogical framework in which generally students are required to write a short essay, fosters students' critical thinking skills. Three tutors and seven second-year students, who were studying PPE (Politics, Philosophy, and Economics) at Oxford, took part in the study. Data were gathered by semi-structured interviews, which were recorded and transcribed by the researcher, and by observations. The results demonstrated that tutors were mostly interested in improving students' abilities to clarify central questions, describe the key terms and assumptions specifically in their essays. Also, it is underlined in the study that students prefer explicit and systematic critical thinking strategies during the lessons rather than implicit strategies. This study stresses the importance of teaching critical thinking skills clearly and systematically.

Yen (2011) examined the effects of a literary project on EFL non-English majors' critical reading and writing performance. The number of the participants was 40 university students who were studying at a state university in Taiwan. The

researcher applied 4P model (plan, produce, publish, present) in which students work collaboratively in order to create e-story mapping which enables students to comprehend and interpret the classic texts in a better way. To collect the data, the researcher constructed e-mapping story rubric which was piloted and reviewed by experts. After 18-week study, the students' e-story mapping projects were analysed and the findings showed that the more students spent time on e-mapping story by 4P model, the more they improved their critical reading and writing performance.

Fahim and Mouziraji (2013) set out a descriptive study which targeted to find out the relationship between EFL students' self-efficacy and their CT ability. 50 freshmen students from English Language department took part in this study. Data were gathered by means of Self-Efficacy Questionnaire (Bandura, 1994), and California Critical Thinking Skills Test-Form B (CCTST-B-34) (Facione & Facione, 1994). The results of the study demonsrated that there was a positive relationship between EFL students' self-efficacy and their critical thinking skills. In other words, the students who had higher self-efficacy had higher critical thinking abilities than the students who had lower self-efficacy.

Leong in 2013 tried to investigate the form and nature of issues raised by second-year biology undergraduate students in their critique writing for the research articles. The number of the participants was 119 and all of them had to take academic writing course to improve their skills to write appropriate papers for the academic purposes. The researcher, after piloting the study, identified two categories to analyse the papers: surface issues (organizational, lexical issues), and depth issues (argumentation, impact on reader). The students were asked to read an article which was related to their department, biology, and then write a comment on the strengths and weaknesses of the paper. According to the results, out of 119 students, only one student's paper contained depth issues. Most of the students' papers (78) were consisting of solely surface issues, and rest of the students' papers (40) were consisting of both surface and depth issues. In the light of the findings, two-stage process writing was recommended to improve the students' writing performance. This two-stage process writing includes summary writing first, and then using evaluative criteria.

Golpour (2014) conducted a study with the aim of finding the relationship between critical thinking levels of the EFL learners and their writing performance. 64 advanced level of EFL learners, who were studying at a high school in Iran, were able to take part into the study. Data were collected by means of Critical Thinking Test developed by Honey (2004) and participants' descriptive and argumentative writings, which were analysed through analytic writing scale developed by Weir (1990). First of all, according to critical thinking results, the participants were divided into two groups: high critical thinkers whose results were above 65 point, and low critical thinkers whose results were below 65 point. Two writing topics, one of them was descriptive, the other was argumentative, were given to these groups in two different sessions. The writing papers were analysed by two experienced university professors and the findings of the study demonstrated that the participants who were in the group of high critical thinkers had a better performance in their writings in terms of critical thinking. In other words, the students who had higher critical thinking skills were able write more critical assignments.

Yousefi and Mohammadi (2016) conducted a research in order to investigate the relationship between critical thinking ability and reading comprehension of post-graduate students majoring at English Language Teaching and Translation departments. Gender was also one of the variables in this study. 443 MA students were able to participate in the study. Data were collected by means of Watson Glaser (1980) Critical Thinking Appraisal Form A (WGCTA), and TOEFL reading comprehension test developed by Philips (2001). First of all, the participants took the TOEFL reading comprehension test which consisted of five texts and fifty items. After this test, the participants were grouped as low, mid and high based on their proficiency test performance. Finally, these three groups answered the translated version of Watson Glaser Critical Thinking Appraisal Form A. The results of the study demonstrated that there was no statistically difference between low and mid group, low and high group, mid and high group's reading comprehension skills and their CT skills. Also, the study underlined that there was no significant difference between female and male participants in terms of the relationship between critical thinking and reading comprehension skill of the postgraduate university students.

Marzban and Barati (2016) carried out a study to examine the relationship between CT skills and language learning strategies and reading comprehension of male and female students who are studying at English Translation and English Teaching departments of a state university in Iran. 79 students were able to participate into this study. Data were collected by means of California Critical Thinking Skill Test (CCTST), Strategy Inventory for Language Learning (SILL), and reading section of TOEFL test. The findings showed that there was a positive relationship between critical thinking skills and reading comprehension skills of students. There was also positive relationship between reading comprehension skills and language learning strategies of students. Finally, it was found that there was no significant difference between male and female students in terms of their critical thinking skills and language learning strategies.

Apart from descriptive studies conducted abroad, there are some studies which were conducted in Turkey, and these studies are given in chorological order below.

Özdemir (2005) conducted a study which aimed to determine the level of university students' critical thinking skills in terms of their gender, birth place, field of study and their parents' socio-economic and educational levels. In total 128 students, who were studying at faculty of education at a state university in Turkey, participated into the study. To collect the data, survey method and 30-item attitude scale, which was developed and piloted by the researcher, was used. The lowest and the highest average was set between 1.50 and 2.50, and the general average of the students who took the test was 1.79, which means the students had moderate level of critical thinking skills, and there was no significant difference among the students in terms of their gender, birth place, field of study and their parents' socio-economic and educational levels.

Similarly, Bükeoğlu and Yılmaz (2005) carried out a study to examine the university students' critical thinking levels across many variables: age, gender, having taken part or not in any research activities before. The total number of the participants was 128, studying at the faculty of education at a state university in Turkey. Data were gathered by means of California Critical Thinking Disposition Inventory that was translated into Turkish by Kökdemir (2003). The results of the study showed that the

students' critical thinking skills were moderate. However, there was no significant difference towards critical thinking ability in terms of gender and having taken part or not in any research activities before. The only variable had a difference was age. The students, who were 21 years old, had more tendencies to think critically compared to the students who were younger or older.

Tümkaya, Aybek and Aldağ (2009) carried out a descriptive study at a state university in Turkey. The aim of the study was to identify the differences in university students' critical thinking disposition and perceived problem solving skills based on gender, grade level and field of study. Also, the relationship between critical thinking disposition and problem solving skills were analysed. The number of the participants were 353 Turkish university students who were from various departments. The data were collected through California Critical Thinking Disposition Inventory developed by Facione and Facione (1996) and Problem Solving Inventory developed by Heppner and Petersen (1982). The results pointed out that there was no significant difference among students based on gender. However, the level of students made a difference in terms of critical thinking skills and problem solving skills. In other words, the seniors were more critical and more skilled in problem solving compared to the freshmen. Also, the field of study had an impact on students' critical thinking abilities; social science students' critical thinking scores were higher than the science students' critical thinking scores; however, different departments had no impact on problem solving skills. Finally, the study showed that the students who had higher critical thinking disposition skills were better problem solvers.

Another study by Alagözlü and Süzer (2010) was set with the aim of investigating CT levels of Turkish pre-service teachers of English through written texts both in Turkish (L1) and in English (L2). The participants (N=30) were grouped in two groups according to their GPA scores in order to set homogenous groups. The first group of the participants were asked to write a response essay in their L1, while the second group participants were asked to write a response essay in their L2. The English essays were assessed by the Ennis-Weir Critical Thinking Essay Test (1985), the Turkish essays were assessed with the back-translated version of the EWCTET to evaluate the CT levels of the participants. The results of the essays were compared and it was found that there was not a significant difference between Turkish essays and

English essays of participants in terms of their CT levels. Moreover, in contrast to researchers' expectations, the participants' CT level was higher in English essays when they were compared to Turkish essays, but this difference was not very considerable.

The study by Tümkaya (2011) was carried out to examine science students' critical thinking disposition. The total number of the participants was 650 consisting of freshmen, sophomore, junior and senior students who were studying at a state university in Turkey. Data were gathered through California Critical Thinking Disposition Inventory that was translated into Turkish by Kökdemir (2003). According to results, the students' critical thinking level was found low, and the students who were academically more successful had statistically better critical thinking skills than the ones who had low academic success. Also, it was found one more time that there was a significant difference between senior students and freshmen students in terms of their critical thinking levels. In other words, the senior students had better critical thinking levels than the freshmen students.

### 2.4. Experimental Studies on Critical Thinking

A number of experimental studies were conducted in order to find whether any type of treatment fosters, improves the critical thinking skills of the participants or not. Some of these studies conducted abroad and in Turkey, which are mostly promising in terms of improving the participants' critical thinking skill, are summarized and given below chronologically.

Davidson and Dunhan (1996) conducted an experimental study to examine the effect of critical thinking strategies on critical thinking skills of EFL learners. The number of the participants was 36: 17 of them were in experimental group and 19 of them were in control group, studying extensive academic English at a junior college. Data were gathered through Ennis-Weir Test developed by Ennis & Weir (1985). The treatment lasted 1 academic year, two terms. During this time, the experimental group was instructed through content-based instruction, through critical thinking strategies: elementary clarification, basic support, inference, advanced clarification, and strategies and tactics while the control group was instructed through traditional content-based instruction. At the end of the treatment, Ennis-Weir Test was applied to

both groups and the results showed that the critical thinking strategies improved experimental group students' critical thinking skills compared to control group students.

Fahim and Sa'eepour (2011) carried out a study with the purpose of examining the effect of classroom debates on critical thinking skills and reading comprehension skills. The participants of the study were 60 EFL learners studying at an English Institute in Iran, and most of them were high school students and a few of them were freshmen students. The students were divided into two groups as experimental group (N=30), and control group (N=30). Data were collected by means of pre- and post-tests of reading comprehension test and critical thinking appraisal test. The experimental group had 8 debate sessions held once a week. In the experimental group, the students were required to read, research, have knowledge about the topic before the debate day. When they came to the classroom, they were equipped about the debate topic. The instructor divided the classroom into two groups every week. One of the groups was affirmative side; the other was the negative side. During the discussion times, the instructor took notes, and when the discussions were over, the students got feedback about their strong and weak sides in the discussion. During this 8-week period, control group did not get any treatment, they were taught by traditional instruction. When the treatment was over, post-tests of reading comprehension test and critical thinking test were conducted to both experimental and control groups. The findings of the study showed that there was significant difference between two groups in terms of reading comprehension scores. In other words, the treatment had a positive effect on experimental group's reading comprehension scores. However, there was no significant difference between two groups in terms of their critical thinking scores. In contrast to many similar studies, debate-based instruction did not improve students' critical thinking skills. Possible reasons, for this result, were stated as: limited time, low number of debates and lack of experience of the participants about debate sessions.

In another experimental study by Hashemi and Ghanizadeh (2012), the purpose was to examine the effect of critical discourse analysis (CDA) on TEFL students' critical thinking ability in Reading Journalistic Texts course. There were 53 participants, 29 of them were in the experimental group and 24 of them were in the control group, studying at a state university in Iran. To collect data Watson-Glaser

Critical Thinking Appraisal by Watson and Glaser (2002) was used and applied to both groups as pre-test before the treatment started. In both groups, Reading English Newspaper by Shams (2007) and instructional materials were used. However, only the students in the experimental group had 13-session treatment in which CDA and formulated follow-up questions were conducted. CDA is a framework for analysing discourse which has three dimensions: text, interaction and social context by Fairclough (1995). Also, in both groups students were required to do presentations about the topics they had chosen before. At the end of the treatment, Watson-Glaser Critical Thinking Appraisal was applied as post-test and the results were analysed. According the findings, the CDA had a positive effect on TEFL students' critical thinking ability. Besides, the research stressed that the students who were in the experimental group chose more controversial presentation topics requiring ideological assumptions, value judgements and opinions while the students in control group chose uncontroversial topics.

Fahim and Hashtroodi (2012) carried out an experimental study to examine the effect of teaching critical thinking strategies on the quality of argumentative essays written by the university students. There were 59 freshmen students who were studying at translation department at a university in Iran. The study design was quasi-experimental as the two classes were not chosen randomly by the researcher. The experimental group, consisting of 29 students, received a treatment which was called Thesis-Analysis-Synthesis (TASK) developed by Unrau (1997), and this treatment lasted 6 sessions. On the other hand, the control group, consisting 30 students, received traditional course in which they learnt to write argumentative essay. The students, who were in experimental and control group, were required to write five-paragraph essay before and after the treatment. Data were collected through scoring rubric by Unrau (1997). The findings of the study showed that the students in experimental group and control group improved their essay writing significantly. However, there was no significant difference between experimental and control group in terms of effect of critical thinking strategies treatment. The students were able to improve their critical thinking abilities, but the strategies taught in treatment did not improve students' argumentative essays as expected.

Yang and Gamble (2013) did a research to investigate the effectiveness of critical thinking-based instruction on EFL learners' proficiency success and critical thinking skills. There were 68 freshmen students studying at a university in Taiwan. The groups, 31 students in the experimental group, 37 students in the control group, were randomly assigned. Data were collected via proficiency exam (General English Proficiency Test) and Holistic Critical Thinking Scoring Rubric by Facione and Facione (1994). The study, which was applied in the compulsory English Reading and Listening course, lasted 8 weeks. As a necessity for this course, students were required to show sufficient proficiency in all skills: reading, listening, speaking and writing. Therefore, the researcher conducted a study in which all skills were instructed through critical thinking strategies. In experimental group, there were additional activities, improving critical thinking ability, for reading and listening skills. Speaking lessons were done through debates and discussions, and in the writing lessons the students were taught to write argumentative essays. On the other hand, the control group did not have additional reading and listening activities. In their speaking lessons, they were required to do presentations and in writing lessons they were taught to write process writing. In other words, while critical thinking strategies were embedded into each skill in the experimental group, the traditional instruction was employed in the control group. At the end of the treatment, both groups had proficiency exam and wrote an essay. The proficiency exam results showed that the experimental group outperformed the control group. The results of the essays, which were analysed by two instructors, demonstrated that critical thinking-based instruction improved the experimental group's critical thinking skills and they were successful in using critical opinions in their argumentative essays.

Tous, Tahriri, Haghighi (2015) conducted an experimental study with 88 randomly assigned EFL high school learners. There were 44 students (22 males and 22 females) in the experimental group, and 44 students (22 males and 22 females) in the control group. Both the experimental and the control group were also divided into two groups as males and females. The purpose of the study was to investigate the effect of instruction through debate on male and female EFL students' reading comprehension and on their critical thinking levels. To collect the data California Critical Thinking Skills Test (CCTST) by Facione (2010), and Read Theory Critical Reading Comprehension Test (RTCRCT) were used as pre-and post-tests to test the

participants' critical thinking skills. The experimental group had debate sessions twice a week in one and a half month. During this time, both the experimental and the control group read the same reading materials; however, the control group had traditional instruction in the lesson. In other words, while the experimental group did debates after reading the texts, the control group just answered the comprehension questions, which did not require any judgement or discussion, after the reading the texts. When the treatment was over, pre- and post-tests of experimental and control groups were compared, and the findings showed that experimental groups' CCTST and RTCRCT scores were statistically higher than the control groups'. However, the results showed that there was no significant difference between the male and female students which means that the role of gender was not effective on students' critical thinking skills.

In addition to experimental studies conducted abroad, there are also some studies which were conducted in Turkey, and these studies are given in chorological order below.

Akyüz and Samsa (2009) carried out an experimental study in which pre-test, post-test single group model was applied. The aim of the study was to investigate the effects of blended learning environment, which combines online and face-to-face approaches, on critical learning skills of the university students who were majoring at Computer and Instructional Technology department at a state university in Turkey. The number of the participants was 44 studying in the third grade. Data were gathered by means of Watson-Glaser Critical Thinking Appraisal Test which was translated into Turkish by Çıkrıkçı-Demirtaş (1996). Pre-test was applied online and then the students attended the 5-week blended course for the Design and Use of Instructional Material course. During this time, the students participated into the online discussions which were monitored by the teachers. After 5-week period, post-test was applied and the results indicated that there was no significant difference between pre-test and post-test scores, which means 5-week blended learning environment did not affect participants' critical thinking skills considerably.

Korkmaz and Karakuş (2009) conducted a study to investigate the effect of the blended learning model on high school students' critical thinking dispositions in Geography lessons. The study design was experimental with total of 57 participants:

28 in the experimental group and 29 in the control group. Data were collected via California Critical Thinking Disposition Inventory translated into Turkish by Kökdemir (2003), which was implemented before and after the treatment to both groups. The experimental group took 4-week treatment in which students were taught Geography -Soil and Plant Unit- through website in the computer laboratory of the school. In these lessons the visuals, animations and many other technology-based activities were used. After these face-to-face lessons, the experimental group students were assigned online activities and assignments as out of class activities. On the other hand, control group was taught through traditional method in which teacher-centred method was used and activities were generally done through question-answer technique. When the treatment was completed, CCDTI was implemented to both groups again as post-test. According the results, there was a significant difference between the pre- and post-test scores of experimental group. In other words, the blended learning method improved the critical thinking levels of students who were in the experimental group. When the post-test scores of experimental and control group were compared, the experimental group had higher critical thinking scores than the control group.

Tok and Sevinç (2010) did a quasi-experimental study to investigate the effects of Thinking Skills course on the pre-service teachers' critical thinking skills and their perception of problem solving skills. There were 101 senior students studying at pre-school teaching department at a state university in Turkey. The participants were grouped in three: 34 students in the experimental group, 34 in the control group I, and 33 in the control group II. Data were collected through Watson-Glaser Critical Thinking Appraisal adapted by Çıkrıkçı (1992) and Problem Solving Inventory by Heppner & Petersen (1982). Robert Successful Intelligence Method by Robert Sternberg (2000) and Thinking-based Inquiry Method by Sternberg & Fisher (2005) were used in the experimental group lessons. On the other hand, the students were taught by only Thinking-based Inquiry Method in control group I, while the students in control group II were not taught by any specific method or activity. This study lasted 12 weeks, and at the end of the study the post-tests of WGCTA and PSI administered to investigate the possible changes of the participants who took the treatment. The findings of the critical thinking inventory demonstrated that there was a significant difference between the pre- and post-test scores of experimental group except for the

interpretation dimension. Besides, experimental group had higher post-test scores of critical thinking skills than the control groups. However, according the problem-solving inventory, the control groups had higher scores than the experimental group.

Çubukçu (2011) conducted a study with the purpose of finding the effects of critical thinking strategies on students' critical thinking skills in reading courses. The participants of the study were 80 fifth grade students chosen randomly. Data were collected through Holistic Critical Thinking Scoring Rubric by Facione & Facione (1996). The study lasted 3 weeks, and during this time Bloom's Taxonomy, from simple to more complex questions, was used as a critical thinking strategy in the reading classes while only comprehension questions were used in the reading classes of control group. After the treatment, both groups were required to complete a task as an assignment. The findings of the study showed that experimental group outperformed the control group on critical thinking scores.

Güner (2015) conducted an experimental study to investigate the effects of critical-based instruction on the participants' critical thinking disposition, critical reading self-efficacy levels and L2 writing performance. The number of the participants was 61 freshmen Turkish students, 31 in experimental and 30 in control group, studying at ELT department at one of the state universities in Turkey. Data were collected through California Critical Thinking Disposition Inventory translated into Turkish by Kökdemir (2003), Critical Reading Self-Efficacy Scale translated into Turkish by Küçükoğlu (2008), and participants' argumentative essays. The study lasted 10 weeks. Control group students took traditional instruction in their three-hour reading/writing course while experimental group students had two-hour reading/writing course and one-hour critical-based instruction every week, which was in total 10 hours. The results of the study showed that there was no significant difference between control and experimental group students' in terms of their critical thinking disposition level (except for the open-mindedness sub-skill), critical reading self-efficacy level, and L2 writing performance. It is concluded from the study that 10-week treatment did not enhance the students' critical thinking levels.

Bayram (2015) carried out an experimental study with the aim of investigating the effects of WebQuest-supported critical thinking instruction on the participants' critical thinking disposition level and L2 writing performance. Another purpose in the study was to investigate whether there would be change in the experimental group students' understanding of critical thinking and their opinions about the WebQuest-supported instruction. Web-Quest is an online web design in which students can find answers to question(s) through links. The study was held with 60 freshman Turkish students studying at ELT department at a state university in Turkey. There were 30 students in experimental group and 30 students in control group. The study had both quantitative and qualitative data. Quantitative data were gathered via California Critical Thinking Disposition Inventory translated into Turkish by Kökdemir (2003), and students' argumentative essays. Qualitative data were collected through the WebQuest Opinion Survey by Prapinwong (2008), and focus group interviews. The study lasted 6 weeks. While experimental group students had WebQuest-supported instruction in their reading/writing course, control group students had traditional instruction in the same course. The quantitative data results of the study showed that there was a significant difference between the experimental and control group students in terms of their critical thinking disposition levels and L2 writing performance. According to qualitative data results, the experimental group students showed better awareness about critical thinking and they had positive perceptions towards WebQuest- supported learning. The study showed that WebQuest-supported instruction improved the experimental group students' critical thinking disposition levels, L2 writing performance and it changed their opinions towards WebQuest-supported learning positively, and at the end of the study the students had clearer understanding about critical thinking.

To summarize, the literature shows that CT-based instruction and activities have mostly been found effective in improving critical thinking skills of learners majoring in different areas such as Computer, Technology, Geography. However, the studies were carried out in the field of ELT were limited in number and had different results. While some of the studies conducted in ELT had significant effects on the learners' CT skills, some of them did not.

Therefore, the present study aims to contribute to the literature by addressing the following research questions:

1. Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of their:
   a. perceived critical thinking disposition level?
   b. L2 critical reading self-efficacy level?
   c. L2 critical writing performance?
2. Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of their perceived critical thinking disposition level in the delayed post-test?
3. Is there a change in the experimental group students' understanding of critical thinking at the end of the study?

# Chapter 3

# Methodology

This chapter presents research design, setting and participants, data collection instruments, data collection procedures, and data analysis of the study. Then it ends with the limitations of the study.

## 3.1. Research Design

In the present study, mixed method research design was employed. In other words, both quantitative and qualitative data were collected to analyse the results of the study. "All methods had bias and weaknesses, and the collection of both quantitative and qualitative data neutralized the weaknesses of each form data" (Creswell, 2013, p.43). Therefore, instead of employing only one type of design, both designs, quantitative and qualitative, were used in this study.

## 3.2 Setting

This study was carried out at the preparatory program of a private university in İstanbul, Turkey. This program which was established in 2005 consists of about 2000 students every year. The majority of the students are Turkish EFL students while about %10 come from Eastern countries. The goal of the program is to teach the English language and skills necessary to pursue their studies in their respective departments with a view to 'Learning English by Living It'.

For preparatory students, a modular system (course system) is in effect. The academic year is comprised of two terms and in each term, there is one combined module which generally lasts about sixteen weeks. These combined modules are ordered in different levels (A1 & A2 module, A2 & B1 module, B1 & B2 module, and only B2 or C1 module). Students are required to complete modules successfully with an overall grade of at least 65% to advance to a higher level. The average number of the students in each classroom is between 18 and 24. Students have 24 hours English

classes in a week, 15 hours integrated skills -grammar, reading, listening, vocabulary- and 9 hours writing-speaking skills with 2 teachers for each class. The lessons are given in English and the methods used are both communicative and task based learning. Students take different kinds of exams such as vocabulary quizzes, timed-writings, mid-term exams, speaking tasks, collaborative tasks and end of module exams in order to reach the level of proficiency and take the proficiency exam to be successful in this program. In addition to the exams, the students are responsible for tasks that are done through online platform (ItsLearning).

The present study took place in the integrated skills lesson with B2 (intermediate) level students and they, averagely, have 4-hour grammar lessons, 3-hour vocabulary lessons, 6-hour reading lessons and 2-hour listening lessons in a week, which makes 15 hours in total. The critical thinking-based instruction was given in the reading and listening lessons.

### 3.3. Participants

At the time of the study, there were 34 intermediate level (B2) classes at the preparatory school, and two of them were chosen for the present study. In both classes, there were 19 students; however, when the study started, some of the students did not attend the lessons; therefore, only 13 students could attend the study from each class. With a total of 26 EFL students, classes were assigned as the experimental group (N=13) and control group (N=13). The information about participants is given separately below as experimental and control group.

According to background information questionnaire (see Appendix A), there were 4 (30.8%) females and 9 (69.2%) males in the experimental group. 8 (61.5%) of them graduated from state schools while 5 (38.5%) of them graduated from private schools. Nearly all of them, 12 (92.3%) studied English before the preparatory school, only one of them did not study English before the preparatory school. More than half of the students, 7 (53.8%) studied English at both primary and high school while the rest 6 (46.2%) studied English at only primary or high school. Only 5 (38.5%) of the students went abroad for educational or vocational reasons, and they generally stayed not more than two weeks.

In the control group, there were 9 (69.2%) females and 4 (30.8%) males. 11 (84.6%) of them graduated from state school while 2 (15.4%) of them graduated from private school. All the students studied English before the preparatory school at both primary and high school. More than half of the students, 7, (53.8%) went abroad for educational or vocational reasons, and they generally stayed more than one month. The students' ages in control and experimental group vary between 18 - 20.

One of the participants is the researcher who has been teaching English for 8 years and the researcher gave the critical thinking-based instruction in the experimental group as the students' integrated skills instructor. The other instructor, who has been teaching English for 15 years, gave traditional-based instruction in the control group as the students' integrated skills teacher.

### 3.4. Procedures

**3.4.1. Data collection instruments.** In this study, both quantitative and qualitative instruments were used to collect the data. Quantitative data were gathered by means of three types of instruments. To find out the participants' critical thinking dispositions, California Critical Thinking Disposition Inventory- Turkish (CCTDI-T) (Kökdemir, 2003) was applied (see Appendix B). This instrument was applied to both groups before and after the study, and it was applied four weeks after the treatment to find out the delayed results. Afterwards, Critical Reading Self-Efficacy Scale (CRSES) (Küçükoğlu, 2008) was administered in order to find the participants' critical reading self-efficacy level (see Appendix C). This instrument was applied to both groups before and after the study. Finally, students' opinion essays were analysed to find out whether there is a significant difference between control and experimental group in terms of students' critical thinking on their essays.

Qualitative data were gathered through definitions of students on critical thinking in the experimental group. The students were asked to make a definition of critical thinking and these definitions were gathered before and after the study as pre- and post-opinions.

***3.4.1.1. California critical thinking disposition inventory-Turkish (CCTDI-T).*** As stated above, to be able to find out the participants' critical thinking disposition levels, California Critical Thinking Dispositions Inventory- Turkish (CCTDI-T) was applied to both control and experimental group before and after the study, and four weeks after the treatment.

CCTDI was designed by Facione and Facione in 1992 with the aim of assessing graduate and undergraduate students' critical thinking dispositions. CCTDI originally consists of 75 items and each item is given in 6-point Likert-type which ranges from 1 (strongly disagree) to 6 (strongly agree). CCTDI has seven sub-scales; truth-seeking (12 items) refers to being eager to seek the best knowledge in the context, analyticity (11 items) refers to anticipating problems, and finding solutions to these problems, open-mindedness (10 items) refers to being tolerant towards divergent views, self-confidence (9 items) refers to trusting in one's own reasoning, inquisitiveness (11 items) refers to having intellectual curiosity and desire to learn more, maturity (10 items) refers to being judicious in one's decision-making , and systematicity (12 items) refers to being organized, orderly, focused, and diligent in inquiry.

In this study, California Critical Thinking Disposition Inventory- Turkish (CCTDI-T) was used, which was translated by Kökdemir (2003) as a part of post-graduate dissertation. CCDTI has originally 75 items with seven sub-scales, however, after the factor analysis results were taken, 19 items, which are 3, 4, 5, 7, 8, 11, 13, 14, 17, 19, 24, 29, 41, 42, 45, 68, 71, 72, and 75, have been excluded from the Turkish version of CCTDI since these items' correlation coefficient was lower than .20, and the first version of CCDTI-T consisted of 56 items. However, there were 5 items which could not be replaced under any sub-scales, so these 5 items were also excluded from the CCDTI-T. Therefore, the last Turkish version of the instrument is 51 items, whose correlation coefficient were .32 or higher than .32, and six sub-scales: open-mindedness, self-confidence, analyticity, truth-seeking, inquisitiveness and systematicity. The 'maturity' and 'open-mindedness' were gathered under the open-mindedness scale. The final version of CCDTI-T is given below.

Table 2

*California Critical Thinking Disposition Inventory- Turkish Subscales*

| | |
|---|---|
| Truth-seeking | 6-11-20-25-27-28-49 |
| Analyticity | 2-3-12-13-16-17-24-26-37-40-46-50 |
| Inquisitiveness | 1-8-30-31-32-34-38-39-42 |
| Open-mindedness | 5-7-15-18-22-33-36-41-43-45-47 |
| Self-confidence | 14-29-35-44-48-51 |
| Systematicity | 4-9-10-19-21-23 |

The Cronbach alpha coefficient of the CCTDI-T was found to be .88 and the internal consistency reliability scores for each scale is given in the table.

Table 3

*Internal Consistency Reliability of CCTDI-T Subscales*

| Truth-seeking | Analyticity | Inquisitiveness | Open-mindedness | Self-confidence | Systematicity |
|---|---|---|---|---|---|
| .61 | .75 | .88 | .75 | .77 | .75 |

According to Kökdemir (2003), if the total score of CCTDI-T is higher than 300, it implies the strong critical thinking disposition level, and if the total score of CCTDI-T is 240 or lower than 240, it indicates the deficient critical thinking disposition level. Nevertheless, a score between 240 and 300 shows ambivalence towards critical thinking.

***3.4.1.2. Critical reading self-efficacy scale (CRSES).*** After employing CCTDI-T, Critical Reading Self-Efficacy Scale (CRSES) was applied to both control and experimental group with the aim of finding out the participants' critical reading self-efficacy. CRSES was employed before and after the study.

Critical Reading Self-Efficacy Scale was developed by Küçükoğlu in 2008 with purpose of determining the reading self-efficacy levels of Turkish students. In its original form, there were 33 items in the scale; however, after piloting it with a small group, eight items were excluded by Küçükoğlu since these items were misleading or

incomprehensible. Therefore, the last version of CRSES is 25 items and each item is given in 5-point Likert-type which ranges from 5 (strongly agree) to 1 (strongly disagree). Cronbach Alpha of CRSES was found to be .85 which makes it statistically valid enough to be used in studies.

***3.4.1.3. Opinion essays of the students.*** The students in both control group and experimental group were required to write an opinion essay which was also their first timed-writing task in this module. In total, the students had three timed-writing tasks; however, as the study lasted four weeks, only the first timed-writing task, which was done immediately after the treatment, was analysed. Two different raters assessed the essays of the two classes by using critical thinking scoring rubric developed by the testing unit members of the preparatory school. Critical thinking scoring rubric has four grading ranks: novice, nearing proficiency, proficient, advanced, and it has five different rating criteria categories which are: summarizing problem, personal perspective, applying assumptions, formulating hypothesis, and conclusions (see Appendix D). The students were required to write an essay on one of the topics given below.

*"Some people believe that exams are not a necessary part of education system."*

*"All university students should join a student club (i.e. sport club, theatre club, dance club, etc.)."*

Before timed-writing tasks, students do process writing to improve their academic writing skills. Most of the students write two drafts, some of the students write three drafts to get 'complete' which means all the mistakes are corrected by students and they are ready to have timed-writing task.

***3.4.1.4. Experimental group students' opinions on critical thinking.*** Before the study started, the researcher asked experimental group students to write their opinions on critical thinking. Each student made a definition of critical thinking based on their knowledge and perspectives. These definitions were accepted as pre-opinions of the students who did not get the treatment. After the study, four weeks later, the experimental group students made the definition of critical thinking again, and these definitions were accepted as post-opinions on critical thinking. The researcher compared each student's pre- and post-opinions to be able to find if there was any difference or not.

***3.4.1.5. Researcher's journal and field notes.*** During the study, the researcher took notes down to find out the weak and the strong sides of every activity, to prepare and implement revised and more effective activities in the further lessons. Also, the dialogues among students, their comments on the activities were written down to have a better viewpoint of the effectiveness of the CT based instruction in the experimental group.

**3.4.2. Data collection procedures.** This study lasted four weeks in the second term of 2016-2017 academic year. A week before the study, in the first week of the term, CCTDI-T and CRSES were applied to both experimental and control group as pre-tests. In the second week, the treatment with the experimental group started and in the fifth week the treatment ended (See Appendix E). The researcher taught in the experimental group, and another instructor taught in the control group during the study. In this present study, while experimental group was taking critical-based instruction in the integrated skills lessons, the control group was taking traditional instruction in their integrated skills lessons. When the treatment was over, both experimental and control group took the CCTDI-T and CRSES as post-tests. In the week 6, one week after the treatment, both groups attended timed-writing task in which they were supposed to write an opinion essay. After the writing task, two different raters assessed the essays of the two classes by using critical thinking scoring rubric. In the week 9, four weeks after the treatment, CCTDI-T was applied as delayed post-test to both groups again.

During this present study, both control and experimental group followed the same weekly schedules, in other words, students in both groups read the same texts in their reading lessons, listened the same audios and used the same materials in their listening lessons; however, as stated above, some extra activities were done in the experimental group to improve students' critical thinking levels. The instruction given to experimental and control group is defined separately in detail below. Although the study lasted four weeks, only one week instruction, as a sample, is explained for each group.

***3.4.2.1. Instruction in the control group.*** The control group was taught integrated skills fifteen hours every week by another instructor. The materials used are: *Language Leader Course Book* (intermediate level) (Cotton, Falvey, Kent, 2014), and weekly pack which consists of extra reading text, listening activities, grammar practice, and vocabulary activities. These weekly packs are level and theme appropriate which are prepared by material unit members.

The program below is the weekly schedule, which starts on Monday and ends on Friday.

Table 4

*The Second Week of B2 Level's Weekly Schedule*

| **Week** | **Unit** | **Language Focus** | **Reading** | **Listening** | **Vocabulary** |
|---|---|---|---|---|---|
| **Week 2 (Feb.6-Feb. 10)** | LLI Unit 4 Language (4.2 & 4.3) | **Additional:** Passives (Basic Forms) | 4.2 Reading Text<br>4.3 Reading Text<br>Extra: Bilingual Brain | Gaelic Society (WL)<br>New Kinds of Food (NT) | Unit 4.2 & 4.3 Words<br>Unit 4 Academic Words |

As stated earlier, students had 6 hours reading lessons, 2 hours listening lessons each week. The table given below shows the details of the reading and listening lessons of one week.

Table 5

*The Second Week Schedule of Reading & Listening Lessons*

| **Lesson Hour** | **Skill** | **Topic** | **Technique** |
|---|---|---|---|
| 1 | Reading | The Future of English | Matching |
| 2 | Reading | The Future of English | Question-Answer |
| 3 | Reading | Avoiding Online Mistakes | Matching |
| 4 | Reading | Avoiding Online Mistakes | Pair Discussion |
| 5 | Listening | New Kinds of Food | Listening for Details<br>Question-Answer |
| 6 | Reading | Bilingual Brain | Matching<br>Question-Answer |
| 7 | Reading | Bilingual Brian | Writing |
| 8 | Listening | Gaelic Society | Listening for Gist<br>Question-Answer |

In the first and second hour, control group students did reading activity. The theme of the unit was ‘Language’ and there were three short reading texts which are ‘Facts about English’, ‘Why Study Chinese’ and ‘English Forum’. The instructor wanted the students to skim the three short texts quickly to understand what they were about. After skimming, the students shared their predictions about the texts. Then, they were asked to read the texts carefully to match these texts with the correct titles given in the book. After matching activity, the students answered the comprehension questions in the book individually. In two hours, they did all the related follow up activities to understand the texts of the unit.

In the third reading lesson, the topic of the reading text was ‘Avoiding Online Mistakes’ which had six warning tips for the people who use internet. Before reading the text, the instructor did a warm-up activity by asking a few questions about the internet. After the warm-up activity, the students read the six warning tips and they did a matching activity in which the suitable headings and the tips were matched. In the fourth lesson, the instructor wanted students to study in pairs and discuss the open-ended questions about online mistakes in the book.

In the fifth lesson, the students did a listening activity. They listened to the audio twice which was about 'Genetically Modified Foods'. Since it was a note-taking activity, the students took their notes and answered the multiple-choice questions.

In lesson six, the students did a reading activity and the topic was 'Bilingual Brain', which was about bilingual people. Before reading the text, the students answered two pre-reading questions. After pre-reading activity, the students read the text and matched the paragraphs with the suitable headings. Then they answered the multiple-choice questions related to the reading text. In the other lesson, the students answered two open-ended questions by writing their opinions, and the instructor checked all the answers.

In the eighth lesson, the students did a listening activity in which the students answered the multiple-choice questions while they were listening to the audio. The topic of the listening was 'Gaelic Society'.

In control group, as it is highlighted above, no specific activity was done to improve the students' CT skills, and most of the activities were done by implementing lower order thinking skills of Bloom's Taxonomy which are remembering, understanding, and applying.

***3.4.2.2. Instruction in the experimental group.*** The experimental group was taught integrated skills fifteen hours every week by the researcher. The same materials used in the experimental group which are: *Language Leader Course Book* (intermediate level) (Cotton, Falvey, Kent, 2014), and weekly pack which consists of extra reading text, listening activities, grammar practice, and vocabulary activities.

The same weekly schedule was followed in the experimental group; however, most of the instruction in the lessons was given in a different way on the purpose of enhancing experimental group students' CT skills. While preparing the critical thinking based instruction, the researcher benefited from six sub-scales of the California Critical Thinking Disposition Inventory, which are inquisitiveness, open-mindedness, analyticity, self-confidence, truth-seeking, and sytematicity. In addition

to sub-scales of CCTDI, revised version of Bloom's Taxonomy was used to improve the critical thinking based instruction and activities.

In the first hour, before starting to read the three short texts, 'Facts about English', 'Why Study Chinese' and 'English Forum', the students were given worksheet consisting of four open-ended questions as pre-reading activity. These pre-reading questions, falling under the *inquisitiveness* sub-scale, were prepared to arouse students' curiosity about the topic. In given time, the students tried to answer the questions. Since some of them were hard to answer without knowledge (i.e. 'what does lingua franca mean?'), they were allowed to search from the internet on the purpose of improving their *truth-seeking* skill, which aims the best knowledge. When the students finished searching, they shared their answers with each other. Then, they read three short texts to match them with the correct titles given in the book. Matching activity, which is one of the sub-categories of cognitive process *(understanding)*, contributes to reasoning by analogy. After matching activity, the students read the first text carefully one more time, and they were asked to summarize the text with their own words by writing only one sentence. This activity was repeated for three times since there were three texts. As stated Bloom's Taxonomy, summarizing, *understanding sub-category*, improves abstracting ability, determining a theme or main points.

In the second hour, the students were divided into groups to hold a debate. The debate topic was 'Which one is better? American English or British English?*'*, and it was also the topic of one the reading texts done in the first lesson. The students were given 10 minutes to search, write their notes down, share information and discuss the topic with their own group members. After 10 minutes, a brief instruction about discussion techniques and strategies were given in order to improve students' organizational skills, and to give them the idea of being focused during the debate, which is the necessity of *systematicity* skill. Then the students started to discuss the topic which lasted 30 minutes. One group defended that 'American English' is better, the other group defended that 'British English' is better. Debate, which was done as an extra activity, was chosen by the researcher to improve the students' *truth-seeking, open-mindedness, self-confidence* skills. While students were searching for the information to use in the debate, some of them searched for the topic from the internet, and some of the students tried to find information from the book, which showed that

they needed to find reliable, correct information, and searching for the reliable knowledge improves *truth-seeking* skill. During the debate activity, the students were supposed to express themselves to the other group members which required *self-confidence* skill. Since they were supporting different sides of a topic, they were also supposed to respect to the other group members' ideas which could be divergent, and showing a tolerance to different ideas enhances *open-mindedness* skill.

In the third lesson, the topic of the reading text was 'Avoiding Online Mistakes' which had six warning tips for the people who use internet. Before reading the text, the students were asked a few questions about the internet as a warm-up activity. Then the students read the six warning tips and they did a matching activity, in which the suitable headings and the tips were matched. When the matching activity finished, one of the warning tips was chosen, which was about sharing personal information on the internet via social media, and the students were asked to make some comments on it by sharing their own experiences. Sharing personal experiences, especially bad ones, requires *self-confidence* to be able tell them without hesitations. That's why, the researcher wanted the students to share these experiences in the classroom as much as possible.

In the other lesson, the instructor distributed worksheet, which included similar problems with the reading text done in the previous lesson, with the aim of improving students' problem solving skills. Problem solving activities fall under the *analyticity* skill. To improve analyticity skill, students are supposed to deal with problems and find possible solutions to these problems. These kinds of activities also improve *applying* cognitive process and in this activity since the problems were familiar to the students, it was *executing* cognitive process, one of the sub-categories of applying. In this activity, there were 3 problems related to using language, sharing personal information on the internet. The students made their own groups to study and then they started to determine the problem or problems in each situation and then they found a solution with their group members. When the students were ready, they stated the problems and shared their solutions with other groups. One of the problem-solving activities is given below as a sample.

Sample from the activity;

1. Alan is one of my Facebook friends. In fact, he is a good person. However, whenever I see his posts on Facebook, I feel embarrassed. He swears about anything such as about country, politics, personal relationships.
   **What is the possible future problem for Alan?**
   _____

   **What is the appropriate solution for the writer (Alan's friend)?**
   _____

At the end of the lesson, the instructor distributed worksheet, as homework, consisting of two open-ended questions which were related to the following day's reading text and listening activity. These questions were given to the students to make a research about them. Searching for information is the necessity of *inquisitiveness* skill since searching for information enhances the learning desire. The questions are given below.

1. What do GM (Genetically Modified) Foods mean? Please search about it and write what you have understood with your own words.

2. What do you think about people who learnt speaking English (or another second language) when they were children and the people who learnt speaking English later in their life?

In the fifth lesson, which was done the other day, before doing the listening activity, the researcher asked what the students searched and found about 'GM (genetically modified) Foods'. The students defined GM foods with their own words and explained the reasons why people prefer GM foods, and their negative effects on people's life. Generally, students make their research, do their homework; however, when they are supposed to share their ideas, they generally show reluctance in the lesson for many reasons, but especially due to lack of confidence. Therefore, this

activity, sharing ideas, was done with the purpose of improving students' *self-confidence* skill. After this brief information sharing, the students did the listening activity, which was note-taking (see Appendix F). The students listened to the audio twice, took their notes and answered the multiple-choice questions.

In lesson six, the students were asked to answer the second question which was about bilingual people. Since the students were prepared, they stated their opinions, talked about the bilingual people and gave examples from their lives. After this short discussion, the students read the text about bilingual people, 'Bilingual Brain' (see Appendix G), and they matched the paragraphs of the text with the suitable headings. Then they answered the multiple-choice questions related to the reading text.

In lesson seven, the students answered two open-ended questions by writing their opinions, and the instructor checked all the answers.

In the eighth lesson, the students did a listening activity in which the students answered the multiple-choice questions while they were listening to the audio. The topic of the listening was 'Gaelic Society'.

In the following three weeks, many other activities were done to improve students' CT skills and as stated before these activities were prepared by taking the sub-skills of CCTDI into consideration. To improve *inquisitiveness* skill, in other words to improve the students' curiosity towards topics, pre-reading activities were done before reading the texts, or questions related to following day's topics were given as a research homework. Debates were regularly held in each week since debates help improve many sub-skills of critical thinking: *open-mindedness, self-confidence, truth-seeking* skills. Besides, problem solving activities were done in each week since problem solving requires analytic thinking which is the other skill, *analyticity*, of critical thinking. All these activities were done in an order in each week with an aim of improving the students' *systematicity* skill. All these in and out of class activities were also designed regarding cognitive process categories from lower order thinking skills (remembering, understanding, applying) to higher order thinking skills (analysing, evaluating, creating). If it is required to be more precise about the total

number of the activities done during this 4-week treatment, 4 debate activities, 4 problem solving activities and nearly every day pre- and post- reading/listening activities, and out of class activities were done to improve the students' critical thinking skills.

Since Critical Reading Self Efficacy Scale (CRSES) does not have sub categories, no specific activity was done to improve the students' critical reading skill; however, some activities were done regarding the items of the scale. While the students were doing reading activities, they were asked to summarize the texts, take some notes while analysing the reading passages, or criticize the writers of the texts, which were related to the items of critical reading scale.

**3.4.3. Data analysis procedures.** As stated earlier, in this study both quantitative and qualitative data were gathered from the experimental and control group. Quantitative data was collected through CCTDI-T and CRSES at the beginning of the study as pre-tests, and at the end of the study as post-tests. Besides, scores of the students' opinion essays were used as quantitative data. These three instruments' scores were analysed by using Statistical Package for the Social Sciences (SPSS), version 20.

Qualitative data, collected both at the beginning and at the end of the study, were gathered through definitions of students on critical thinking in the experimental group. Data were analysed by means of constant comparative method by Glazer and Strauss (1967).

#### *3.4.3.1. Quantitative data analysis*

*3.4.3.1.1. California critical thinking disposition inventory-Turkish (CCTDI-T).* As mentioned earlier, CCTDI-T consists of 51 items scored on a 6-point Likert response scale-from strongly disagree (1) to strongly agree (6)-, which also consists of 22 negatively worded items (items 5, 6, 9, 11, 15, 18, 19, 20, 21, 22, 23, 25, 27, 28, 33, 36, 41, 43, 45, 47, 49, 50).

CCTDI-T was administered both at the beginning and at the end of the study in both groups. SPSS, version 20 was used to analyse the quantitative data coming from CCTDI-T. To find out the differences between experimental and the control group and the differences between the pre-tests, post-tests and delayed-post tests of both groups Kolmogrov-Smirnov test was used for testing normality. Means and standard deviations were given as descriptive statistics. To compare independent groups independent t-test; for dependent groups (pre-and post-measurements) paired t-test was used. The significance level was set at $p < 0.05$.

*3.4.3.1.2. Critical reading self-efficacy scale (CRSES).* As stated earlier, CRSES consists of 25 items scored on a 5-point Likert response scale- from strongly agree (5) to strongly disagree (1)-, which also consists of one negatively worded item (item 5).

CRSES was administered both at the beginning and at the end of the study in both groups. SPSS, version 20 was used to analyse the quantitative data coming from CRSES. To find out the differences between experimental and the control group and the differences between the pre-tests and post-tests of both groups, Kolmogrov-Smirnov test was used for testing normality. Means and standard deviations were given as descriptive statistics. To compare independent groups independent t-test; for dependent groups (pre-and post-CRSES measurements) paired t-test was used. The significance level was set at $p < 0.05$.

*3.4.3.1.3. Opinion essays of the students.* After the students in experimental and control group wrote their opinion essays, they were assessed by two raters independently by using the critical thinking scoring rubric which was developed by the testing unit members of the preparatory school. Agreement between two raters was evaluated via ICC (Intraclass Correlation Coefficient), which was interpreted as follows; less than 0.40 is poor, between 0.40 and 0.59 is fair, between 0.60 and 0.74 is good, between 0.75 and 1.00 is excellent agreement. The significance level was set at $p < 0.05$.

To find out the differences between the experimental and control group in terms of their L2 writing performance, Kolmogrov-Smirnov test and independent t-test were used to analyse the scores of critical essay writing.

### 3.4.3.2. Qualitative data analysis

*3.4.3.2.1. Experimental group students' opinions on critical thinking.* The experimental group students were asked to write a definition of critical thinking according to their knowledge and perspective at the beginning and at the at the end of the study. To find out whether there is a difference, the pre-and post-critical thinking definitions of each student were analysed by means of constant comparative method by Glazer and Strauss (1967) which is used in qualitative research to examine written documents to gain a deeper understanding and description of the participant's convictions, conduct, and experiences. Constant and comparative method has two types of analysis process: data reduction and coding and coding analysis process has three levels of analyses: open coding, axial coding, and selective coding. Since similarities and relationships of the students' definitions on critical thinking were analysed, selective coding analysis was used in this study.

Pre-definitions of the students were analysed one by one and then the similar and the most repeated words (adjectives and nouns) were categorized with their frequency numbers. The same procedure was followed for the post-definitions of the students on critical thinking. The similarities and the differences of the pre- and post-definitions of the experimental group students on critical thinking were compared and these similarities and differences were given in the results part.

*3.4.3.2.2. Researcher's journal and field notes.* During the study, the researcher took many notes down to show the effectiveness and the ineffectiveness of each activity. Besides, the dialogues among the students during the CT-based instruction lessons were written down. These notes and dialogues were written as they took place in the study. Some of the dialogues were held in Turkish among the experimental group students, however, they were translated into English by the researcher.

### 3.5. Limitations

In this present study, there are a few limitations. One of the limitations was short period of time. Since the data results were needed to be analysed, the study lasted only 4 weeks. Although the students took CT based instruction between six and eight hours every week, more than 4-week period could improve the students CT dispositions since the researcher could implement more CT based activities.

Another limitation, which is also related the first one, is number of the activities. Since the time is limited, some activities were done once in a week such as debates, problem-solving activities. If the study had been employed in a longer period, more activities could have been done.

The number of the participants (N=26) who took part in the study was not enough to generalize the results of the present study, which is also one of the limitations. Since the class number is limited in private school classes, between 18-24, more participants could not take part in the study.

# Chapter 4

# Results

In this chapter, results of the study will be presented in two parts: In the first part the quantitative data results gathered from California Critical Thinking Disposition Inventory- Turkish, Critical Reading Self Efficacy Scale, students' opinion essays will be presented. In the second part, qualitative data obtained from the experimental group students' opinions will be presented.

## 4.1. Quantitative Data Results

**4.1.1. The results of the CCDTI-T scores.** To find out if there was a statistically significant difference between the experimental and control group in terms of their perceived level of CT dispositions, Kolmogrov-Smirnov test and independent t-test were used to analyse the pre-, post-, and delayed post-test scores of CCTDI-T of the EFL students in both groups.

Table 6

*The Results of the Pre-and Post CCDTI-T Scores*

| | Group | | |
|---|---|---|---|
| Scale | Experimental | Control | p |
| CCDTI-T | M ± SD | M ± SD | |
| Pre | 232,54 ± 24,01 | 230,38 ± 15,75 | 0,789 |
| Post | 242,92 ± 16,86 | 228,77 ± 28,18 | 0,133 |

M: Mean SD: Standard Deviation
Independent t-test

When the mean CT scores of experimental and control groups were compared for pre- and post-test results, it was found that there was no statistically difference between groups (p>0,05).

Table 7

*The Result of the Post-and Delayed CCDTI-T Scores*

| | Group | | |
|---|---|---|---|
| Scale | Experimental | Control | p |
| CCDTI-T | M ± SD | M ± SD | |
| Post | 242,92 ± 16,86 | 228,77 ± 28,18 | 0,133 |
| Delayed | 226,46 ± 24,74 | 220,69 ± 15,09 | 0,480 |

M: Mean SD: Standard Deviation
Independent t-test

When the mean CT scores of experimental and control groups were compared for post- and delayed test results, it was found that there was no statistically difference between groups (p>0,05).

To determine if there was a statistically significant difference between the experimental and control group in terms of their CT sub-scales, Kolmogrov-Smirnov test and independent t-test were used to analyse the pre-, post-, and delayed sub-scale scores.

Table 8

*The Result of the Pre-and Post CCDTI-T Sub-Scale Scores*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| Sub-scale | Experimental | | | Control | | p |
| CCDTI-T | M | ± | SD | M | ± | SD | |
| Pre-Analyticity | 58,46 | ± | 7,06 | 59,23 | ± | 5,85 | 0,765 |
| Post-Analyticity | 60,69 | ± | 5,78 | 59,62 | ± | 6,65 | 0,663 |
| Pre-Open-mindedness | 51,08 | ± | 7,62 | 51,15 | ± | 6,36 | 0,978 |
| Post-Open-mindedness | 55,46 | ± | 6,86 | 50,69 | ± | 10,46 | 0,182 |
| Pre-Inquisitiveness | 44,62 | ± | 4,89 | 40,77 | ± | 6,25 | 0,093 |
| Post-Inquisitiveness | 43,08 | ± | 5,25 | 38,92 | ± | 3,99 | 0,032* |
| Pre-Self-confidence | 26,15 | ± | 4,56 | 26,08 | ± | 3,33 | 0,961 |
| Post-Self-confidence | 26,85 | ± | 4,18 | 26,46 | ± | 4,39 | 0,821 |
| Pre-Truth seeking | 27,92 | ± | 5,28 | 26,69 | ± | 5,45 | 0,564 |
| Post-Truth seeking | 27,23 | ± | 5,67 | 24,54 | ± | 6,44 | 0,269 |
| Pre-Systematicity | 25,85 | ± | 4,67 | 28,31 | ± | 3,52 | 0,142 |
| Post-Systematicity | 28,08 | ± | 3,99 | 26,69 | ± | 4,23 | 0,399 |

M: Mean SD: Standard Deviation
Independent t-test

*****p<0.05

As table 9 (The Results of the Pre-and Post CCDTI-T Sub-Scale Scores) shows, when the mean CT sub-scale scores of experimental and control groups were compared for pre-and post-test results, it was found that there was no statistically difference between groups except for inquisitiveness ($p<0.05$) in the post- CCTDI-T in favour of the experimental group. This result shows that CT based instruction had a significant effect on the experimental group students' inquisitiveness sub-skill.

Table 9

*The Results of the Post and Delayed CCDTI-T Sub-Scale Scores*

| | Group | | | | | | |
|---|---|---|---|---|---|---|---|
| Sub-scale | Experimental | | | Control | | | p |
| CCDTI-T | M | ± | SD | M | ± | SD | |
| Post-Analyticity | 60,69 | ± | 5,78 | 59,62 | ± | 6,65 | 0,663 |
| Delayed-Analyticity | 56,85 | ± | 5,54 | 57,08 | ± | 5,04 | 0,912 |
| Post-Open-mindedness | 55,46 | ± | 6,86 | 50,69 | ± | 10,46 | 0,182 |
| Delayed-Open-mindedness | 48,62 | ± | 9,73 | 49,08 | ± | 6,37 | 0,887 |
| Post-Inquisitiveness | 43,08 | ± | 5,25 | 38,92 | ± | 3,99 | 0,032* |
| Delayed-Inquisitiveness | 43,38 | ± | 3,33 | 38,31 | ± | 5,95 | 0,015* |
| Post-Self-confidence | 26,85 | ± | 4,18 | 26,46 | ± | 4,39 | 0,821 |
| Delayed-Self-confidence | 26,15 | ± | 5,44 | 25,46 | ± | 3,48 | 0,703 |
| Post-Truth seeking | 27,23 | ± | 5,67 | 24,54 | ± | 6,44 | 0,269 |
| Delayed-Truth seeking | 25,85 | ± | 5,54 | 23,46 | ± | 5,01 | 0,261 |
| Post-Systematicity | 28,08 | ± | 3,99 | 26,69 | ± | 4,23 | 0,399 |
| Delayed-Systematicity | 25,62 | ± | 4,29 | 27,31 | ± | 2,50 | 0,231 |

M: Mean SD: Standard Deviation
Independent t-test

*****$p<0.05$

As table 10 (The Results of the Post and Delayed CCDTI-T Sub-Scale Scores) shows, when the mean CT sub-scale scores of experimental and control groups were compared for post-and delayed test results, it was found that there was no statistically difference between groups except for inquisitiveness ($p<0.05$) in the delayed CCTDI-T in favour of the experimental group, which was found significantly different in the comparison of pre-and post-results also. This result shows that CT based instruction continued to have a significant effect on the experimental group students' inquisitiveness sub-skill.

**4.1.2. The results of the CRSES scores.** To find out if there was a statistically significant difference between the experimental and control group in terms of their perceived level of CR self-efficacy level, Kolmogrov-Smirnov test and independent t-test were used to analyse the pre- and, post- scores of CRSES of the EFL students in both groups.

Table 10

*The Result of the CRSES Scores*

| | Group | | p |
|---|---|---|---|
| Scale | Experimental | Control | |
| CRSES | M ± SD | M ± SD | |
| Pre | 98,62 ± 12,03 | 96,85 ± 9,56 | 0,682 |
| Post | 100,92 ± 11,77 | 99,62 ± 14,20 | 0,800 |

M: Mean SD: Standard Deviation
Independent t-test

When the mean CRSES scores of experimental and control groups were compared for pre-, post-test results, it was found that there was no statistically difference between groups ($p>0,05$).

**4.1.3. The results of the opinion essays.** As stated before, the students in both control group and experimental group were required to write an opinion essay on one of the given topics in their timed-writing exam. Two different raters assessed the essays of the two classes by using critical thinking scoring rubric developed by the testing unit members of the preparatory school. Critical thinking scoring rubric has four grading ranks: novice, nearing proficiency, proficient, advanced, and it has five different rating criteria categories which are: summarizing problem, personal perspective, applying assumptions, formulating hypothesis, and conclusions (see Appendix D).

To determine if rater agreement reliability was established, Intraclass Correlation Coefficient (ICC) was applied to students' opinion essay scores. According to results of rater agreement reliability, a statistically significant positive correlation was found between the raters. ICC was 0,98 for first and second ratings in

the experimental group ($p<0.05$), and ICC was 0,98 for the first and the second ratings in the control group ($p<0.05$).

To find out if there was a statistically significant difference between the experimental and control group in terms of their L2 critical writing performance, Kolmogrov-Smirnov test and independent t-test were used to analyse the scores of opinion essays.

**Comparisons of the L2 Writing Scores of Students in the Experimental and Control Group**

Table 11

*The Results of Opinion Essays*

| | Group | | p |
|---|---|---|---|
| | Experimental | Control | |
| | M ± SD | M ± SD | |
| First Rater | 67,69 ± 16,54 | 60,38 ± 21,16 | 0,336 |
| Second Rater | 64,23 ± 16,05 | 58,08 ± 18,99 | 0,381 |

M: Mean SD: Standard Deviation
Independent t-test

As table 12 (The Results of Opinion Essays) shows, when the first and second raters' ratings were compared in the experimental and control group, it was found that there was no statistically significant difference ($p>0,05$) between the groups in terms of their critical writing performance.

## 4.2. Qualitative Data Results

**4.2.1. The results of experimental group students' opinions on critical thinking.** To find out whether there is a significant difference between pre-and post-critical thinking definitions of each student, constant comparative method by Glazer and Strauss (1967) was used to analyse the opinions.

Before the treatment, some of the students stated that critical thinking is being logical (4 students), open-minded (3 students), and objective (4 students) to be able to find the truth. A sample quotation is given below.

*Student A: Critical thinking means being realist, logical and objective about a problem or situation. To be a critical thinker, problems and situations should be evaluated by different perspectives.*

Some of the students stated that critical thinking means being respectful to opposing views, and different ideas to have a better perception (7 students). A sample quotation is given below.

*Student B: If I am a critical thinker, I should respect the people who do not think like me. I should be empathic and try to understand why and how these people have different ideas.*

After the treatment, most of the students stated that critical thinking requires analytic questioning (6 students), and logical reasoning (3 students) to be able to reach the truth. A sample quotation is given below.

*Student C: Critical thinking means searching for the given knowledge and asking questions about it. By questioning, I can analyse parts of the knowledge and I can learn the truth.*

Also, nearly in each paper it was seen that students defined critical thinking as evaluating both positive and negative aspects of ideas or situations (6 students). Some of them also stated that critical thinking means finding logical solutions to the problems of life (4 students).

*Student D: If we want to think critically, we need to evaluate an idea or a situation by considering its positive and negative sides.*

*Student E: Critical thinking is a detailed way of thinking and when we need to make a critique, we should value positive and negative sides of the ideas, and problems.*

When the students' pre- and post-opinions were compared, it was found that before the treatment students defined critical thinking as qualifications that a person needs to have: realist, logical, objective, empathetic; however, after the treatment students defined critical thinking as a process of thinking which requires analyticity,

problem solving, questioning. This result shows that CT based instruction had changed students' perceptions towards critical thinking, and they perceived critical thinking as a skill which has stages rather than a skill which needs to be possessed.

**4.2.1. Researcher's journal and field notes.** To demonstrate the rationale behind the activities and the effectiveness of them during the lessons, notes were taken down by the researcher and these notes were given below.

To improve the students' inquisitiveness, generally questions were given, which were about the upcoming lesson or activity, to them to make a research about these questions. At the beginning, they were not aware enough how to make a research about the given questions. They were copying all the answers from the internet and telling the information as it was. After it was stated many times that their own answers or sentences that they wrote with their own words were more important, they tried to change their habits and tried to answer the questions with their own words or sentences. After a while, as they got used to searching about the given questions, they became more eager to make a research and find information about the questions. Also, it was observed that giving related questions a day before eased the need of warm-up activities since we started to the lessons by answering the given questions.

To improve their analyticity, problem solving activities were generally preferred. At the beginning, the students were resistant to think about solutions to the given problems; therefore, their solutions were simple and ordinary. An example is given below.

Sample from the activity;

1. Alan is one of my Facebook friends. In fact, he is a good person. However, whenever I see his posts on Facebook, I feel embarrassed. He swears about anything such as about country, politics, personal relationships.
   **What is the possible future problem for Alan?**
   _____

   **What is the appropriate solution for the writer (Alan's friend)?**
   _____

The students in groups stated some possible future problems and they were given below.

*Group 1:* Alan can lose his job.

*Group 2:* Alan can lose some of his friends who are not thinking like him.

*Group 3:* Alan may be hurting some other people's feelings.

The students stated some solutions and they were also given below.

*Group 1:* The writer should block him.

*Group 2:* The writer can warn his friend, Alan, about the possible problems in the future.

However, similar activities were done again to improve their problem-solving skills, and after a while it was observed that although they were having difficulty in finding a solution, they were more eager to discuss about the solutions in groups. The problem activity and the dialogue are given below.

| Problem;<br>Your friends came over to your house for a movie night. One of your friends brought another friend so there are more people than you planned for. You want to pass out the drinks but you only have five cans of soda and you need 6 for everyone to have one. What could you do? |
|---|

The dialogue to find a solution to given problem among a group of three students was given below.

*Student A:* If we want to find an original solution, we need to think in a different way.
*Student B:* Sharing the soda with glasses is too ordinary, isn't it?
*Student C:* I don't know, it is a solution then.
*Student A:* I told you, it should be different. This solution is not different.
*Student C:* If you have any idea, tell us.
*Student A:* What about playing a game?
*Student B:* What do you mean? They will play a game to share soda?
*Student A:* Kind of. I mean, if they play a game…
*Student C:* But, in games, there is one winner. So? The winner is the loser?

*Student B:* No, No. I have an idea. They are six people, right? They will play this game for five times and each time there will be one winner. The first winner is not going to attend the second round; the second winner is not going to attend the third round... and finally there will be two people left. As you guess, there will be one loser finally. And this person will not a have a soda. What do you think?
*Student A:* That's fine. At least it is not ordinary solution.
*Student C:* Yes, it is a good one.

One of the experiences is worth mentioning here is that at the end of one of the lessons a question was written on the board which was related to the other day's reading text, *Advertisement Targeting Children.* The other day, before starting to read the text, the question was discussed in the class and since all the students searched and wrote about it, nearly all of them wanted to talk about the question ('what do you think about the adverts which are targeting children?'). Some of the answers were given by the students were given below.

*Student G:* The ads targeting children affecting the family budget negatively. When the children see a toy or food on TV, they want it, if their parents don't buy these, they become naughty.
*Student J:* There are some educational toy ads, I think the ads are not always bad for children.
*Student K:* When the children watch ads, they imitate the characters' behaviours. I think ads are dangerous.
*Student M:* Some ads are educational, some ads are dangerous for children.

During this question-answer activity, one of the students wanted to change the topic and asked that;

*Student E:* Why don't we talk about the children who are acting in the ads? I think, it is more important. I think, ad companies are using the children, they are giving them utopic world for a short time, when this acting is over, their new world, dreams are over so they are more depressed than the other children (who are not playing in the ads).

After this comment, the whole class started to talk about the children who are acting in the ads, its advantages and disadvantages for the children and for their future, and some of them said;

> *Student A:* 'I think, companies are using children in their ads because children are innocent, so people think that company, brand is innocent.'
>
> *Student B:* 'In my opinion, children can act in the ads for children products. It is not a problem.'
>
> *Student C:* 'I think, companies are trying to affect our emotions so they prefer children players.'

During this lesson, it was concluded that some of the students searched and thought more about the questions given before, so they wanted to talk about them also.

# Chapter 5

# Discussion and Conclusions

In this chapter, the findings of research questions will be discussed in detail. Afterwards, conclusions and the recommendations for the further research will be presented.

## 5.1. Discussion of Findings for Research Questions

The present study investigated whether there would be a significant difference between the experimental group and control group students in terms of perceived CT dispositions level, critical reading self-efficacy level, L2 critical writing performance. In addition, this study examined if there would be a significant difference before and after the study in terms of the experimental group students' opinion on critical thinking. The following sections discuss the findings of each research question in detail.

### 5.1.1. Discussion of Findings of RQ 1: Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of their perceived critical thinking disposition level?

The results of the CCTDI-T showed that there was no significant difference between the groups in terms of their CT disposition levels. The main factors that may have played role are: time of the study, age of the participants.

First of all, although the CT based instruction was given between six and eight hours in each week by integrating language learning skills (listening, reading, speaking, writing), the time of the study, 4-week, was not enough for the students to change their usual thinking habits into critical thinking habits. The similar studies conducted by Akyüz and Samsa (2009), Fahim and Sa'eepour (2011) and Güner

(2015) gained the same results, in other words there was no significant difference at the end of the studies in terms of the critical thinking levels of the participants, and one of the main reasons had an impact on these results was short period treatment.

When compared to the studies which obtained significant improvements, it can be concluded that the younger the participants are, the more improvements can be seen. In other words, the age of the students can be another factor that affected the results. In the literature, there are many studies that achieved significant improvements in terms of CT dispositions, although the treatment period is short. For instance, Korkmaz and Karakuş (2009) conducted an experimental study which also lasted 4-week period; however, the results of CT dispositions were significantly positive in favour of the experimental group who were high school students.

According to CCTDI-T post results, only the *inquisitiveness* sub-skill had a significant difference ($p<0.05$). Inquisitiveness means intellectual curiosity and the intention to learn new things (Facione, Facione & Giancarlo, 1996, p. 6-7). During the study, since every week a new theme and new topics were studied, nearly every day the students were given question(s) to search about these topics, and to answer the given questions, the students searched for information from the internet both in and out of the class. As they searched, they became eager to learn more and this desire for learning new things not only improved their inquisitiveness skill but also it changed their habits of learning new information. Before the treatment started, when the necessary information was needed, they were expecting explanations from the instructor instead of searching and finding about it on their own; however, after a while, as they practiced, they realized that when there was question, they could search and learn about what they needed via internet easily. Since the activities of searching for information were done more often and regularly, their skill of learning new things, inquisitiveness, showed more improvement than the other sub-skills.

The same result could not be obtained for the other sub-skills, and the reason for that result can be short time. To improve students' inquisitiveness, specific activity or activities were done nearly every day; however, to improve the other sub-skills specific activities were not done as many as for the inquisitiveness activities. For instance, to improve the students' analyticity, generally problem-solving activities were prepared;

however, these kinds of activities could not be done in each day. During the study, problem-solving activity was done four or five times at all. Therefore, it can be concluded that the students may have needed more activities to improve their other critical thinking dispositions, but this also means that more time was necessary to apply these kinds of activities in or out of the class. As Kong (2006, p.8) stated "When practice is involved, time is a crucial factor. More time may be needed for significant changes to take place, particularly in the case of the CT dispositions".

**5.1.2. Discussion of Findings of RQ 2: Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of their L2 critical reading self-efficacy level?** The results of CRSES showed that significant difference was not found between the experimental and control group in terms of their critical reading level. One of the possible reasons may have been the students' reading habits in both L1 and L2. Yılmaz, Köse, Korkut (2009) conducted a study to find out the levels of reading habits of 104 university students, participating from two different universities in Turkey. The results of the study indicated that university students did not have regular reading habits, and as interpreted from the students' statements they do not have enough time to read since they are supposed to study for their exams, and when they read, most of them prefer the course books as a reading material. This result is easily can be generalized for the participants who took place in this study since the exam based education system is effect in each school, from primary stages to higher education, in Turkey. Also, during the study, some conversations were held with the experimental and control group students about reading habits, and in these conversations, the students stated the same reasons: the education system and the exams they were responsible for, as an excuse for not having a regular habit of reading. Having a critical reading habit is related to many factors such as cultural values, economical statue, family institution and education system (Özçelebi & Cebecioğlu, 1990). Since the education system in Turkey value exams and exam results more, most of the students spend their time to be successful in these exams and; therefore, most of the students, even if they want, cannot spare enough time to gain such kinds of habits that improve their critical thinking and reading skills. Apart from education system, the other factors; cultural values, economical statue and family institution can also be regarded as the reasons for the result of this study as well.

**5.1.3. Discussion of Findings of RQ 3: Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of their L2 critical writing performance?** The results of the opinion essays demonstrated that there was no significant difference between the experimental and control group students in terms of L2 critical writing performance. There can be many reasons which also related to reading habits, but for this study the most prominent reason can be the format importance while writing an essay. In writing classes, most of the time is spent on how to write an essay, which means both teachers and the students spend many hours on the organizational structures of the essay. After the format is taught as it is required (by preparatory school management), the rest time is spent on sentence structure (grammar, vocabulary). In short, in writing classes most of the time is spent on 'how to write' an essay instead of 'what to write' in an essay. The participants of this study learnt how to write an opinion essay during the time of the present study (in 4 weeks), which means they could not have enough time to practice their writing skills. Therefore, in the timed-writing exam, they may have focused on to complete the necessities of the opinion essay rather reflecting their possible critical ideas. If the students had more time to practice writing an opinion essay, there could have been a significant difference in favour of the experimental group students.

**5.1.4. Discussion of Findings of RQ 4: Is there a statistically significant difference between the EFL learners who receive traditional English language instruction and those who receive CT-based language instruction in terms of their perceived critical thinking disposition level in the delayed post-test?** According to CCTDI-T delayed post-test results, the same sub-skill, *inquisitiveness*, had a significant difference ($p<0.05$). The delayed CCTDI-T tests were applied 4 weeks after the treatment was ended. However, the students' inquisitiveness did not show a decline. After the treatment was ended, it was observed many times that most of the students kept searching for information about the themes and topics in the lessons. Although they were aware that the treatment was finished, they did not stop using that skill, searching for information, which improved their curiosity, in other words their *inquisitiveness*. Therefore, it can be said that the students may have gained one of the critical thinking sub-skills as a long-term skill. They may use this skill, showing

intellectual curiosity towards searching for accurate and new information, when they start their departments.

**5.1.5. Discussion of Findings of RQ 5: Is there a change in the experimental group students' understanding of critical thinking at the end of the study?** The results coming from the qualitative data showed that there was a difference between the experimental group students' pre- and post-definitions on critical thinking. As stated earlier, before the study, the students perceived critical thinking as qualifications of a person is required to have: realist, objective, logical; however, after the study, the students defined critical thinking as a process in which a person need to apply some techniques to improve it. This change may have occurred because of the following reasons; before the study started, the researcher gave information about the study clearly (purpose, time, and steps of the study), during the study CT based instruction was given explicitly, especially during the activities, and from time to time some conversations were held with the students about thinking critically. It can be concluded that explicit instruction on CT may create a change even if the study is carried out in a short period.

## 5.2. Conclusions

The present study was carried out with the aim of improving students' critical thinking disposition levels, critical reading skills and critical writing performance by giving explicit CT based instruction in 4 weeks; however, the results showed that the significant improvement in terms of CT dispositions (except for inquisitiveness sub-skill), CR skills, and L2 critical writing performance was not found.

As it is understood from this study and the similar studies conducted before, critical thinking is obviously not an ordinary thinking skill, it is clearly a needed skill to keep up with the upgrading education system, high-speed changing world as Facione (1989) stated in the Delphi Report "CT is a liberating force in education and a powerful resource in one's individual and civic life. While not synonymous with good thinking, CT is a pervasive and self-rectifying human phenomenon". However, it is also understood that critical thinking is not a skill which can be gained in a short time. In other words, to gain critical thinking ability, to be a critical thinker requires

much more time, which should start in the family, continue with the education from primary school to higher education, and which also should be improved during the whole life span.

### 5.3. Recommendations for Further Research

This study has several recommendations to be taken for consideration for further research. First of all, time constraint, 4 weeks, may have been one of the factors that played a role on the result of the study. Therefore, if similar studies will be conducted, longer period should be preferred.

Secondly, if the further studies will be conducted in a short time, the activities, improving critical thinking dispositions; such as debates and problem solving activities, should be practiced more often as participants have more chance to practice, they have more possibility to enhance their CT skills.

Finally, the number of the participants (N=26) who took part in the study was not enough to generalize the findings of the present study. Studies with higher number of participants can make more contributions to this field; therefore, for the further research a larger population is advised.

### 5.4. Pedagogical Recommendations

This study has two main pedagogical recommendations for the English language teaching institutions, schools and ELT teachers. Firstly, debate and problem solving activities were favoured by the students during the study a lot. After the first week treatment, the students were always willing to learn the date and topic of these activities, especially debate activities. This willingness showed that the students enjoyed expressing themselves in debates more. Debate activities are generally done on the purpose of improving students' speaking skill, therefore, such kinds of activities are done in the skill lessons. As a recommendation, debate clubs, which should not be part of any lesson, may be a professional option for ELT students who may attend voluntarily at least once a week and they may improve their CT skills rather than improving their speaking skill only.

Another pedagogical recommendation is giving related question(s) for the further lessons. In this study, when the students were given questions to search, the other day or the other lesson they attended lessons more as they were equipped with enough information. In English language teaching settings, it can be easily accepted that since students generally have L2 burden, most of them attend the lessons less or reluctantly. However, when the students were required to search about the given topics, even the students who had many problems while speaking English wanted to attend the lessons since they had some ideas to share, opinions to state. It is recommended to the English teachers to use this technique to increase the participation of students in the lessons.

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# APPENDICES

## A. KİŞİSEL BİLGİ FORMU

Sevgili Öğrenciler,

Araştırma sonuçlarının sağlıklı olabilmesi için soruları dikkatli ve gerçekçi yanıtlayınız ve hiçbir soruyu boş bırakmamaya çalışınız. Vereceğiniz cevaplar yalnızca bu araştırma için kullanılacak ve hiçbir kurum, makam ya da kişiye verilemeyecektir.

Çalışmaya gösterdiğiniz ilgiye teşekkür ederim.

1. Cinsiyetiniz: Kadın ( ) Erkek ( )
2. Yaşınız: ……
3. Ne tür bir liseden mezun oldunuz?

   Devlet Lisesi ( ) Özel Lise ( )

4. Hazırlık eğitiminden önce İngilizce dil eğitimi aldınız mı?

   Evet ( ) Hayır ( )

5. Cevabınız 'Evet' ise, bu eğitimi nerede aldınız?

   İlkokul ( ) Lise ( ) Her ikisi ( ) Diğer: ……

6. Hiç yurtdışında bulundunuz mu?

   Evet ( ) Hayır ( )

7. Cevabınız 'Evet' ise, kaç defa yurtdışında bulundunuz?

   1 ( ) 2 ( ) 3 ( ) Daha fazla ( )

8. Cevabınız 'Evet' ise, yurtdışında en fazla ne kadar süre bulundunuz?

   1 hafta ( ) 2 hafta ( ) Diğer: ……

9. Cevabınız 'Evet' ise, yurtdışında hangi sebeple bulundunuz?

   Eğitim ( ) Seyehat ( ) Diğer: ……

**B. California Eleştirel Düşünme Eğilimi (CCTDI) Ölçeği (Kökdemir, 2003)**

Aşağıdaki ifadelerin sizi ne kadar tanımladığını düşünerek size uygun gelen ifadeyi yuvarlak içine alınız.

| | Hiç katılmıyorum | Katılmıyorum | Kısmen katılmıyorum | Kısmen katılıyorum | Katılıyorum | Tamamen katılıyorum |
|---|---|---|---|---|---|---|
| 1. Tüm hayatım boyunca yeni şeyler çalışmak harika olurdu | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. İnsanların iyi bir düşünceyi savunmak için zayıf fikirlere güvenmeleri beni rahatsız eder. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. Cevap vermeye kalkışmadan önce, her zaman soruya odaklanırım. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. Büyük bir netlikle düşünebilmekten gurur duyuyorum. | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. Dört lehte, bir aleyhte görüş varsa, lehte olan dört görüşe katılırım. | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. Pek çok üniversite dersi ilginç değildir ve almaya değmez. | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. Sadece ezberi değil düşünmeyi gerektiren sınavlar benim için daha iyidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. Diğer insanlar entelektüel merakımı ve araştırıcı kişiliğimi takdir ederler. | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. Mantıklıymış gibi davranıyorum, ama değilim. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. Düşüncelerimi düzenlemek benim için kolaydır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. Ben dahil herkes kendi çıkarı için tartışır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. Kişisel harcamalarımın dikkatlice kaydını tutmak benim için önemlidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. Büyük bir kararla yüz yüze geldiğimde, ilk önce, toplayabileceğim tüm bilgileri toplarım. | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. Kurallara uygun biçimde karar verdiğim için, arkadaşlarım karar vermek için bana danışırlar. | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. Açık fikirli olmak neyin doğru olup olmadığını bilmemek demektir. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 16. Diğer insanları çeşitli konularda neler düşündüklerini anlamak benim için önemlidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. İnandıklarımın tümü için dayanaklarım olmalı. | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. Okumak, mümkün olduğunca, kaçtığım bir şeydir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. İnsanlar çok acele karar verdiğimi söylerler. | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. Üniversitedeki zorunlu dersler vakit kaybıdır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 21. Gerçekten çok karmaşık bir şeyle uğraşmak zorunda kaldığımda benim için panik zamanıdır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 22. Yabancılar sürekli kendi kültürlerini anlamaya uğraşacaklarına, bizim kültürümüzü çalışmalılar. | 1 | 2 | 3 | 4 | 5 | 6 |
| 22. Yabancılar sürekli kendi kültürlerini anlamaya uğraşacaklarına, bizim kültürümüzü çalışmalılar. | 1 | 2 | 3 | 4 | 5 | 6 |
| 23. İnsanlar benim karar vermeyi oyaladığımı düşünürler. | 1 | 2 | 3 | 4 | 5 | 6 |
| 24. İnsanların, bir başkasının fikrine karşı çıkacaklarsa, nedenlere ihtiyacı vardır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 25. Kendi fikirlerimi tartışırken tarafsız olmam imkânsızdır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 26. Ortaya yaratıcı seçenekler koyabilmekten gurur duyarım. | 1 | 2 | 3 | 4 | 5 | 6 |
| 27. Neye inanmak istiyorsam ona inanırım. | 1 | 2 | 3 | 4 | 5 | 6 |
| 28. Zor problemleri çözmek için uğraşmayı sürdürmek o kadar da önemli değildir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 29. Diğerleri, kararların uygulanmasında mantıklı standartların belirlenmesi için bana başvurular. | 1 | 2 | 3 | 4 | 5 | 6 |
| 30. Zorlayıcı şeyler öğrenmeye istekliyimdir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 31. Yabancıların ne düşündüklerini anlamaya çalışmak oldukça anlamlıdır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 32. Meraklı olmam en güçlü yanlarımdan birisidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 33. Görüşlerimi destekleyecek gerçekleri ararım, desteklemeyenleri değil. | 1 | 2 | 3 | 4 | 5 | 6 |
| 34. Karmaşık problemleri çözmeye çalışmak eğlencelidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 35. Diğerlerinin düşüncelerini anlama yeteneğimden dolayı takdir edilirim. | 1 | 2 | 3 | 4 | 5 | 6 |
| 36. Benzetmeler ve analojiler ancak otoyol üzerindeki tekneler kadar yararlıdır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 37. Beni mantıklı olarak tanımlayabilirsiniz. | 1 | 2 | 3 | 4 | 5 | 6 |
| 38. Her şeyin nasıl işlediğini anlamaya çalışmaktan gerçekten hoşlanırım. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 39. İşler zorlaştığında, diğerleri problem üstünde çalışmayı sürdürmemi isterler. | 1 | 2 | 3 | 4 | 5 | 6 |
| 40. Elimizdeki sorun hakkında açık bir fikir edinmek ilk önceliklidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 41. Çelişkili konulardaki fikrim genellikle en son konuştuğum kişiye bağlıdır. | 1 | 2 | 3 | 4 | 5 | 6 |
| 42. Konu ne hakkında olursa olsun daha fazla öğrenmeye hevesliyimdir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 43. Sorunları çözmenin en iyi yolu, cevabı başkasından istemektir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 44. Karmaşık problemlere düzenli yaklaşımımla tanınırım. | 1 | 2 | 3 | 4 | 5 | 6 |
| 45. Farklı dünya görüşlerine karşı açık fikirli olmak, insanların düşündüğünden daha az önemlidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 46. Öğrenebileceğin her şeyi öğren, ne zaman işe yarayacağını bilemezsin. | 1 | 2 | 3 | 4 | 5 | 6 |
| 47. Her şey göründüğü gibidir. | 1 | 2 | 3 | 4 | 5 | 6 |
| 48. Diğer insanlar, sorunun ne zaman çözümleneceği kararını bana bırakırlar. | 1 | 2 | 3 | 4 | 5 | 6 |
| 49. Ne düşündüğümü biliyorum, o zaman neden seçenekleri değerlendiriyor gibi davranayım. | 1 | 2 | 3 | 4 | 5 | 6 |
| 50. Diğerleri kendi fikirlerini ortaya koyarlar ama benim onları duymaya ihtiyacım yok. | 1 | 2 | 3 | 4 | 5 | 6 |
| 51. Karmaşık problemlerin çözümüne yönelik düzenli planlar geliştirmede iyiyimdir. | 1 | 2 | 3 | 4 | 5 | 6 |

## C. Eleştirel Okuma Becerisine İlişkin Özyeterlik Algısı Ölçeği (CRSES) (Küçükoğlu, 2008)

5- Kesinlikle katılıyorum 4- Katılıyorum 3- Fikrim yok 2- Katılmıyorum 1- Kesinlikle katılmıyorum

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. Okuduğum bir yazıda anlatılanları sahip olduğum bilgiler ışığında değerlendirebilirim. | | | | | |
| 2. Bir yazıda anlatılanları yalnızca anlamakla kalmaz o konuda değerlendirme yapmaya da dikkat ederim. | | | | | |
| 3. Bir yazıyı okurken, yazının sonunda neler olabileceğini tahmin edebilirim. | | | | | |
| 4. Okuma parçasına ilişkin okuduğunu anlama soruları hazırlayabilirim. | | | | | |
| 5. Okumak benim için sıkıcı bir çalışmadır. * | | | | | |
| 6. Okuduğum bir parçada geçen bilgileri ihtiyaçlarım doğrultusunda yeniden düzenleyebilirim. | | | | | |
| 7. Okuduğum parçada yazarın savunduğu fikirlerin doğruluğunu değerlendirebilirim. | | | | | |
| 8. Kendimi etkin bir okuyucu olarak görüyorum. | | | | | |
| 9. Okumayı severim. | | | | | |
| 10. Okurken metin üzerine not almak okuduğumu daha iyi anlamama yardımcı olur. | | | | | |
| 11 Okurken önemli gördüğüm kısımları belirleyerek okumak okuduğumu daha iyi hatırlamama yardımcı olur. | | | | | |
| 12 Bir okuma parçası üzerinde çalışırken önemli bilgileri kendi ifadelerimle not alırım. | | | | | |
| 13 Bir okuma parçasını tam olarak anlamam için bütün kelimeleri bilmem gerekmez. | | | | | |
| 14 Okuduğum parçanın ana fikirlerini kendi cümlelerimle özetleyebilirim. | | | | | |

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 15 Okuduğun parçayla ilgili sorulabilecek soruları tahmin edebilirim. | | | | | |
| 16 Okurken parçayla ilgili muhtemel soruların yanıtlarını düşünerek okurum. | | | | | |
| 17 Karışık bir sıralama ile verilmiş bir metni sıralayabilirim. | | | | | |
| 18 Okuduğum parçadaki bilmediğim kelimelerin anlamını parçanın bütününden çıkartabilirim. | | | | | |
| 19 Bir okuma parçasındaki önemsiz bilgiyi önemli bilgiden kolaylıkla ayırabilirim. | | | | | |
| 20 Okuduğum parçanın yazarının fikrini parçadan yorumlayarak çıkarabilirim. | | | | | |
| 21 Okuduğum parçadan mantıklı çıkartımlar yapabilirim. | | | | | |
| 22 Okuduğum parçadaki ana fikirleri parçada nerede arayacağımı bilirim. | | | | | |
| 23 Okuduğum parçaya uygun bir son yazabilirim. | | | | | |
| 24 Okuma çalışmaları yapmak için kendimi güdüleyebilirim. | | | | | |
| 25 Okuduğum parçanın ana fikrini önceki bilgilerimle birleştirebilirim. | | | | | |

## D. CRITICAL THINKING SCORING RUBRIC

Based on the scale from 1 (NOVICE) to 4 (ADVANCED), use the following definitions to rate each student's critical thinking achievement for each criteria.

| RATING CRITERIA | (0-1) NOVICE Speaker/writer has limited strengths regarding this criterion. Intervention is needed for revision or rethinking | 2 NEARING PROFICIENCY Strengths and need for revision are about equal, about half way home | 3 PROFICIENT Speaker/writer has more strengths than weaknesses; some intervention needed for revision or rethinking | 4 ADVANCED Speaker/writer has many strengths; Little or no intervention or rethinking needed. | SCORE |
|---|---|---|---|---|---|
| **SUMMARIZES PROBLEM, QUESTION, OR ISSUE** | • Understands there is a problem.<br>• Unable to identify or identifies a different problem. | • Identifies main problem<br>• Does not summarize or explain them clearly<br>• Easily answered | • Can summarize problem Some details are not thoroughly understood.<br>• May be missing key details or have them confused | • Understands and identifies problem Underlying key details understood<br>• Establishes why the problem needs to be solved | |
| **PERSONAL PERSPECTIVE AND POSTION** | • Assumption is unclear or simplistic.<br>• Adopts a single view of problem<br>• No consideration for other points of view. | • Assumption is more clear<br>• Anticipation other points of view not well developed | • Presents own assumption<br>• Shows some original thinking; might be limited or inconsistent.<br>• Limited inclusion of other opinions or views.<br>• Position is generally clear. | • Assumption shows ownership and refined thinking.<br>• Defends using own experiences.<br>• Compares and justifies own view with other points of view. | |
| **APPLYING ASSUMPTIONS AND CONTEXTS** | • Unable to take a position other than their own.<br>• Everything is black and white.<br>• Does not recognize outside influences.<br>• Makes judgments that are not based on fact. | • Identifies some of the most important issues<br>• Begins to select fact based data but not always strong support of assumption.<br>• Shows some judgments based on the facts. | • Identifies the relevance of key issues.<br>• Makes a fair assessment of data and value to assumptions.<br>• Makes limited fact-based decisions or judgments based on strengths of the data. | • Can analyse, question and address all levels of issues<br>• Presents information based on the audience.<br>• Evaluates the strength of supporting facts applies the strongest facts to make decision or judgements. | |
| **FORMULATES A HYPOTHESIS OR POSITION, SUPPORTS WITH DATA, FACTS, EVIDENCE** | • Does not analyse or verify their supporting information<br>• Evidence may not relate to topic and/or does not<br>• May not identify facts and how they relate<br>• Ineffective organization. | • Identifies some data but limited in scope; may offer opinions a fact<br>• Fails check the facts<br>• Organization effective w/support. | • Selects and evaluates data.<br>• Can tell fact from opinion but not much depth.<br>• Analyses information and identifies a relationship to issue.<br>• Organized effectively. | • Close analysis of facts for accuracy and relevance to issues<br>• Understand bias.<br>• Understands how different points of view affect issues<br>• Sequencing is organized and shows knowledge of best presentation. | |
| **CONCLUSIONS, IMPLICATIONS, AND CONSEQUENCES** | • Fails to identify conclusions<br>• Result is simplistic<br>• May be attributable to external authority. | • Suggestion of results, conclusions, and consequences<br>• Little or no clear reference to facts, data, and/or evidence. | • There is evidence of consequences beyond a single issue.<br>• May be aware of own opinion's influence<br>• Conclusion may only loosely reference results and consequences. | • Can integrate conclusions, results, and consequences with issues and assumptions<br>• Is aware of own assertions.<br>• Identifies and considers what doesn't fit. | |

## E. 5 Week of 2016-2017 Academic Year B2 Program

| Week | Unit | Language Focus | Reading | Listening | Vocabulary |
|---|---|---|---|---|---|
| **Week 1 (Jan. 30-Feb. 3)** | LLI Unit 4 Language (4.1) | **Additional:** First Conditional **Additional**: Second Conditional | 4.1 Reading Text Extra Reading Text: Our Changing Language | Transfer between Eng. Classes (WL) Happiness (NT) | Unit 4.1 Words |
| **Week 2 (Feb.6-Feb. 10)** | LLI Unit 4 Language (4.2 & 4.3) | **Additional:** Passives (Basic Forms) | 4.2 Reading Text 4.3 Reading Text Extra: Bilingual Brain | Gaelic Society (WL) New Kinds of Food (NT) | Unit 4.2 & 4.3 Words Unit 4 Academic Words |
| **Week 3 (Feb. 13 - Feb. 17)** | LLI Unit 5 Advertising (5.1 & 5.3) | **LLI 5.3:** Comparatives and Superlatives, and as ... *as* | 5.1 Reading Text 5.3 Reading Text Extra: In Defense of Advertising | Advertising Ethics and Standards (WL) Public Art (NT) | Unit 5.1 & 5.3 Words Unit 5 Academic Words |
| **Week 4 (Feb. 20 – Feb. 24)** | LLI Unit 6 Education (6.1) | **Additional:** Noun Clauses | 6.1 Reading Text Extra: Value of Degree in Today's Society | Conversation (WL) Post Graduates (NT) | Unit 6.1 Words |
| **Week 5 (Feb. 27 – March3)** | LLI Unit 6 Education (6.2) | **LLI 6.2:** Defining Relative Clauses **LLI 6.3:** Non-defining Relative Clauses | 6.2 Reading Text Extra: Most Likely to Succeed | Conversation about an essay (WL) Journey to Antarctica | Unit 6.2 Words Unit 6 Academic Words |

***The whole 2016-2017 Academic Year B2 Program lasted 15 weeks; however, since the study lasted 4 weeks, 5-week program is given. In the first week, the scales were applied, the study started in the second week, and ended in the fifth week.

## F. Sample Listening Material

### New Kinds of Food

**You are going to listen to a lecture about GM food. As you listen, write notes on the outline.**

GM food definition:

Benefits of GM food

1.

2.

3.

Risks of GM food

1.

2.

3.

## New Kinds of Food

**Circle the correct answer using your notes.**

1. What is meant by "GM" food?
   a. Food which starts with the letter "G" or "M"
   b. Food for plants or animals
   c. Food which is altered in a negative way
   d. Food that has been changed in a lab by scientists

2. What is the purpose of creating GM food?
   a. To practice advanced technology
   b. To improve the food's taste and nutritional value
   c. To study the benefits and risks of eating GM food
   d. To create jobs for scientists

3. Which of the following is NOT MENTIONED as a benefit of using fewer pesticides?
   a. It makes the food taste better.
   b. It reduces environmental pollution.
   c. As a result of it, the GM food is less expensive.
   d. It reduces the costs for farmers.

4. In a year, it's possible to grow more GM strawberries than normal ones because GM strawberries _____.
   a. are less expensive
   b. grow faster than regular strawberries
   c. can be grown off season
   d. are in higher demand

5. Which is true when comparing GM tomatoes to normal tomatoes?
   a. Normal tomatoes are consumed more than GM ones.
   b. Normal tomatoes can stay in the store up to 2 months.
   c. GM tomatoes will stay fresher longer than regular ones.
   d. GM tomatoes need to be eaten within several days.

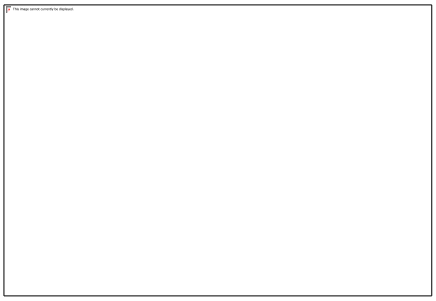
6. One of the risks of growing GM plants is that _____.
   a. they may be dominated by regular plants
   b. they might harm other plants and animals
   c. they will kill all the butterflies in the area
   d. they may be attacked by insects because GM plants are not strong

7. GM food is potentially harmful for people to eat because _____.
   a. genes from animals are put into plants
   b. it is polluted by pesticides
   c. genes from strawberries are put into fish
   d. it is genetically altered yet the effects are unknown

## G. Sample Reading Text

**PART A: Before you read:**

1. Read the title of the text and guess what the text is about.
2. Look at the words “Broca” and “Wernicke” in the picture? What do you think they are? What do they do?



**BILINGUAL BRAIN**

(1) When Karl Kim immigrated to the United States from Korea as a teenager ten years ago, he had a hard time learning English. Now he speaks **it** fluently and recently had a unique opportunity to see how our brains adapt to a second language. Kim is a graduate student in the lab of Joy Hirsch, a neuroscientist in New York. He and Hirsch have recently found evidence that children and adults don't use the same parts of the brain when learning a second language.

(2) The researchers used an instrument called an MRI (magnetic resonance imager) to study the brains of two groups of bilingual people. One group consisted of those who had learned a second language as children. The other consisted of people who, like Kim, learned their second language later in life. People from both groups were placed inside the MRI scanner. **This** allowed Kim and Hirsch to see which parts of the brain were getting more blood and were more active. They asked people from both groups to think about what **they** had done the day before, first in one language and then the other. They couldn't speak out loud, because any movement would disrupt the scanning.

(3) Kim and Hirsch looked specifically at two language centers in the brain — Broca's area, believed to control speech production, and Wernicke's area, thought to process meaning. Kim and Hirsch found that both groups of people used the same part of Wernicke's area no matter what language they were speaking. But how they used Broca's area was different.

(4) People who learned a second language as children used the same region in Broca's area for both languages. People who learned a second language later in life used a special part of Broca's area for their second language — near the **one** activated for their native tongue. How does Hirsch explain this difference? Hirsch believes that when language is first being programmed in young children, their brains may mix all languages into the same area. But once that programming is complete, a different part of the brain must take over a new language.

(5) A second possibility is simply that we may acquire languages differently as children than we do as adults. Hirsch thinks that mothers teach a baby to speak by using different

methods such as touch, sound, and sight. And that's very different from sitting in a high school class.

**PART B: Match the paragraph numbers in Column A with the topics in Column B. There is <u>ONE EXTRA</u> topic in Column B.**

| **Column A** | **Column B** |
|---|---|
| Paragraph 1 _____ | A. The role of mothers in language learning |
| Paragraph 2 _____ | B. Second language learners' problems |
| Paragraph 3 _____ | C. The results of the study |
| Paragraph 4 _____ | D. Background information about the researcher |
| Paragraph 5 _____ | E. Why do some people use a different region in their brain for language learning? |
| | F. About the study |

**PART C: Answer the following questions according to the text.**

1. What is the purpose of the text?
   a) To answer how people become bilingual
   b) To explain the best ways to acquire a second language at different ages
   c) To inform people about the research into the brain of bilingual people
   d) To give information about the researchers, Kim and Hirsch

2. Why did the researchers place two groups of bilingual people inside the MRI at the same time?
   a) To avoid any noise and movement
   b) To see which parts of the brain is working more
   c) To understand how much blood is necessary for them
   d) To finish the study in one day

3. According to paragraph 3 _____.
   a) Broca's area works less than Wernicke's area
   b) people in both groups used different parts of Wernicke's area
   c) Wernicke gets less blood than Broca does
   d) there are different parts in the brain which function differently

4. Which of the following is <u>FALSE?</u>
   a) People who acquire a second language as children use a specific part in Broca's area for both languages.

b) Adult second language learners use a different region in Broca's area for their second language.

c) Hirsch believes that language learning is complicated for children.

d) Adult second language learners do not use the same region in the brain for both languages.

**PART D: What do the following words refer to? They are bold and underlined in the text?**

1. it (parag.1) : _____
2. This (parag.2) : _____
3. they (parag.2) : _____
4. one (parag.4) : _____

**PART E: Find a word which means:**

1. "unusually good and special" (parag.1) : _____

2. "to prevent something, especially a system, process or event, from continuing" (parag.2) _____

3. "to cause something to start" (parag.4): _____

**PART F: Answer the following questions in your own words (min.50 words for each).**

1. What do you think is the best way for teenagers and adults to learn a second language? Why?

_____

_____

_____

2. If you could learn another language, which one would you choose? Why?

_____

_____

_____

## H. CURRICULUM VITA

### PERSONAL INFORMATION

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### EDUCATION

| Degree | Institution | Year of Graduation |
|---|---|---|
| BS | Marmara University | 2009 |
| High School | Edirne Teacher Training High School | 2004 |

### WORK EXPERIENCE

| Year | Place | Enrollment |
|---|---|---|
| 2014- | Bahcesehir University | Instructor |
| 2012-2014 | Okan University | Instructor |
| 2009-2011 | American Language School | English Teacher |

### CERTIFICATES

### PUBLICATIONS

### HOBBIES