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**INSTITUTE OF EDUCATIONAL SCIENCES**

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**ENGLISH LANGUAGE TEACHING MASTER PROGRAMME**

**THE EFFECT OF CRITICAL THINKING EMBEDDED ENGLISH COURSE CURRICULUM TO THE IMPROVEMENT OF CRITICAL THINKING SKILLS OF THE 7TH GRADE SECONDARY SCHOOL LEARNERS**

**MASTER'S THESIS**

**Hatice Kübra BAĞ**

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**T.C.**
**ULUDAĞ ÜNİVERSİTESİ**
**EĞİTİM BİLİMLERİ ENSTİTÜSÜ**
**YABANCI DİLLER EĞİTİMİ BÖLÜMÜ**
**İNGİLİZ DİLİ EĞİTİMİ ANABİLİM DALI**


**ELEŞTİREL DÜŞÜNME İLE DESTEKLENMİŞ İNGİLİZCE DERSİ**
**MÜFREDATININ ORTAOKUL 7.SINIF ÖĞRENCİLERİNİN ELEŞTİREL**
**DÜŞÜNME BECERİLERİNİ GELİŞTİRMEYE ETKİSİ**


**YÜKSEK LİSANS TEZİ**
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# BİLİMSEL ETİĞE UYGUNLUK

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Hatice Kübra BAĞ

# EĞİTİM BİLİMLER ENSTİTÜSÜ
## YÜKSEK LİSANS / DOKTORA İNTİHAL YAZILIM RAPORU

## ULUDAĞ ÜNİVERSİTESİ
## EĞİTİM BİLİMLER ENSTİTÜSÜ
## YABANCI DİLLER EĞİTİMİ ANABİLİM DALI BAŞKANLIĞI'NA

Tez Başlığı / Konusu: Eleştirel Düşünme ile Desteklenmiş İngilizce Dersi Müfredatının Ortaokul 7.Sınıf Öğrencilerinin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi

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"Eleştirel Düşünme ile Desteklenmiş İngilizce Dersi Müfredatının Ortaokul 7.Sınıf Öğrencilerinin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi" adlı Yüksek Lisans tezi, Uludağ Üniversitesi Eğitim Bilimleri Enstitüsü tez yazım kurallarına uygun olarak hazırlanmıştır.

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**Abstract**

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**THE EFFECT OF CRITICAL THINKING EMBEDDED ENGLISH COURSE CURRICULUM TO THE IMPROVEMENT OF CRITICAL THINKING SKILLS OF THE 7TH GRADE SECONDARY SCHOOL LEARNERS**

Evolving trends of the 21$^{st}$ century require the continuous development of individuals to become competent in using the skills of the era effectively.  Critical thinking is one of the basic skills of the century for the intellectual development of the individuals to sustain the global welfare. It is the combination of one's cognitive ability to make interpretation, analysis, evaluation, inference, explanation, self-regulation with affective attitude to integrate these cognitive skills in one's thinking and behaviors. Infusion of these skills and attitudes into the subject matter content is one of the many efforts for the training of individuals to think critically. However, this training has been commonly associated with higher order thinking capacities of

adults regarding the scientific issues mostly. The main hypothesis of this study was the possibility of critical thinking training in a secondary school context with elementary level of EFL learners. While keeping Standard ELT curriculum for the control group (n=31), the study aimed to measure the effectiveness of critical thinking incorporation into the English course in the treatment group (n=31). Having concurrent embedded mixed method research design; this study used various data collection ways. Quantitative data was gathered through Critical Thinking Skills Scales (Demir, 2006) conducted as pretest and posttest and the observation checklist completed for the critical thinking development of each student. Furthermore, the research journal, student diaries and interview were the qualitative tools to make comprehensive analyses on the perceptions.

The statistical and content analyses showed that the treatment group statistically outperformed the control group in the development of critical thinking skills. Qualitative data indicated that the critical thinking embedded English course design was effective for the improvement of both the language and critical thinking skills. Moreover, the instruction process was motivating for the learners thanks to its meaningful, fun, authentic and supportive nature.

*Keywords:* Critical thinking, Critical thinking embedded English course design

# Özet

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## ELEŞTİREL DÜŞÜNME İLE DESTEKLENMİŞ İNGİLİZCE DERSİ MÜFREDATININ ORTAOKUL 7.SINIF ÖĞRENCİLERİNİN ELEŞTİREL DÜŞÜNME BECERİLERİNİ GELİŞTİRMEYE ETKİSİ

21. yüzyılın değişen ihtiyaçları ve gelişen eğilimleri, bireylerin çağın becerilerini etkin kullanabilmelerini sağlamak adına sürekli bir gelişim içinde olmalarını gerektirir. Güncel sorunların çözümü, küresel iletişim ve sürdürülebilir iş birliğini sağlamak için eleştirel ve yaratıcı düşünen bireylerin varlığıyla mümkündür. Eleştirel düşünme; bireylerin yorumlama, analiz, değerlendirme, çıkarım, açıklama, öz düzenleme yapmalarını sağlayan bilişsel beceriler ve bu becerilerin bireylerin düşünce ve davranışlarına yansıtılabilmesini sağlayan duyuşsal tutumların dengeli birleşimi olarak tanımlanır. Bu beceri ve tutumların ders içerikleriyle bütünleştirilmesi, bireylerin eleştirel düşünmelerini destekleyen eğitimlerden yalnızca bir tanesidir. Ancak, bu eğitim daha çok yetişkinlerin genellikle bilimsel konularda üst düzey

düşünmeleriyle ilişkilendirilir. Bu çalışmanın temel varsayımı, eleştirel düşünce eğitiminin başlangıç düzeyi İngilizce seviyesine sahip olan ortaokul 7. sınıf öğrencileri için mümkün olduğudur. Çalışmanın amacı İngilizce dili öğrenimiyle birleştirilmiş eleştirel düşünme becerileri eğitiminin etkiliğini saptamaktır. Kontrol grubu öğrencilerine (s=31) standart İngilizce dersi müfredatı uygulanırken, deney grubu öğrencilerine (s=31) eleştirel düşünce ile desteklenmiş İngilizce ders tasarımının uygulanması hedeflenmiştir. İç içe karma araştırma deseninin kullanıldığı çalışmada nicel ve nitel veriler eş zamanlı olarak toplanmıştır. Eleştirel Düşünme Becerileri Ölçekler Takımı (Demir, 2006) çalışmanın başında ön test, sonunda son test olarak uygulanmıştır. Nicel gözlem formu her bir öğrenci için araştırmanın başında, ortasında, sonunda olmak üzere üçer kez araştırmacı tarafından doldurulmuştur. Ayrıca, araştırmacı günlüğü ve öğrenci günlükleri sürecin başından sonuna kadar tutulmuş; sürecin sonunda gönüllü öğrencilerle görüşme yapılmıştır. Nicel ve nitel veriler göstermiştir ki deney grubu öğrencilerinin eleştirel düşünme becerileri kontrol grubu öğrencilerine göre daha çok gelişmiştir. Nicel verilere göre, deney grubunun son test sonuçları ile kontrol grubunu son test sonuçları arasında deney grubu lehine istatistiksel olarak anlamlı bir farklılık vardır. Bununla birlikte, nitel veriler eleştirel düşünme destekli İngilizce eğitimi öğrencilerin hem düşünme hem dil becerilerini geliştirmede etkili olduğuna işaret etmektedir. Eğitimin anlamlı, eğlenceli, gerçek ve destekleyici yapısı öğrencilerin motivasyonunu önemli ölçüde artırmıştır.

*Anahtar kelimeler:* Eleştirel düşünme, Eleştirel düşünme destekli İngilizce dersi eğitimi

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## List of Abbreviations

APA          : American Philosophical Association

ATC21S    : Assessment and Teaching of 21st Century Skills

CAAP        : Collegiate Assessment of Academic Proficiency

CCDTI       : California Critical Thinking Dispositions Inventory

CCTST       : California Critical Thinking Skills Test

CCTT         : Cornell Critical Thinking Test

CLA           : Collegiate Learning Assessment

CM3          : California Measure of Mental Motivation

CoRT          : Cognitive Research Trust

CT             : Critical Thinking

CTSS         : Critical Thinking Skills Scales

EAP           : English for Academic Purposes

EFL           : English as a Foreign Language

ELT           : English Language Teaching

EPP           : ETS Proficiency Profile

ETS           : Educational Testing Service

HCTA        : Halpern Assessment

HOTS        : Higher Order Thinking Skills

ICT            : Information And Communication Technology

IMPACT    : Improving Minimal Proficiencies by Activating Critical Thinking

L1             : The First Language, Mother Tongue

L2             : The Second Language

MoNE      : Ministry of National Education

NPEC      : National Postsecondary Education Cooperative

OECD      : The Organization for Economic Cooperation and Development

P21        : Partnership for 21st Century Learning

PISA      : Programme for International Student Assessment

SOI        : Structure of Intellect Model

WGCTA   : Watson–Glaser Critical Thinking Appraisal tool

<div align="center">**Chapter 1**</div>

<div align="center">**Introduction**</div>

**1.1. Background of the Study**

The requirements of 21st century create new perspectives and trends to the realization and stability of individual, national and global welfare. In order to cover these requirements and needs of society, current trends have shaped the basic domains of modern life. Interrelated with each other, these domains (economics, education, politics, etc.) have adapted to the present time and they require the individuals to gain some new skills. Constituents of 21st century skills; innovation, productivity, flexibility, critical thinking, creativity, collaboration, communication, technological literacy, media and Internet literacy, social-emotional development, tolerance, individual intellectuality, cultural and global awareness are among necessary qualifications that the individuals should have to keep up with the requirements of the era and to live a qualified social, professional and academic life.

As a real practice and preparation context, education is one of the fundamentals that feed and foster the present and possible qualifications in individuals' social, professional and academic lives. Educational policies and programs concerning with current trends should not only prepare the students for the present world, they must also be visionary enough to guide students to be tomorrow's individuals who can cope with future issues. The quality of education affects learners' development for future well-being of society (Trilling & Fadel, 2009). Having a common language, the individuals participate in the global community actively and processing the skills of the modern era, they can continue the welfare of global community and collaboration. In today's rapidly evolving world, English is a way to support the administration and management of 21st century skills like global awareness, intercultural

awareness, civic literacy, communication, collaboration, creativity and critical thinking. English learning is beyond the foreign language learning concept now; it is an essential component for individual development internationally.

Educational authorities set their objectives to reach out the perfect qualified teaching and learning practices regarding the needs of the society. One of the basic aims of the modern systems is to guide students in their path of being open individuals in order to express themselves easily rather than simply accept the facts. Information is not something taught in classrooms anymore; it is a tool that the learners can reach by themselves and for themselves and manage it according to their own needs. They use the presented or gathered information as a basis to form their experience on that information by interpreting, explaining, analyzing and to deal with the issues by expressing their ideas and creating new perspectives to the solutions. This information management process requires the aware use of 21st century skills. Having some useful skills of the century, the learners can move in their path with a solid confidence and a conscious management. Defined as 4Cs of 21st century, collaboration, communication, creativity and critical thinking are among the best guides in their progress. These skills are key components of contemporary education programs and they are necessary for learners to evolve as successful individuals. The students who can communicate with their peers effectively and collaborate with their environment in a great harmony can also think creatively and critically to cope with new situations. In this study critical thinking has been taken into basis and it is accepted as one of the core skills the students should develop during their learning process.

Regarded as a higher order skill, critical thinking is tended to be associated with adults, higher education, academic life and workplace mostly. Considering critical thinking

only from problem solving angle, researchers attribute it to the adult life and education. However it is a life skill used by every individual from all ages in order to be able to adapt their environment. The children and teenagers should employ their thinking skills properly to become highly respected, well-educated and reasonable individuals; so the educational programs should be designed for the gain of these characteristics (Facione, 1990). Current training practices in innovative classrooms have to be comprehensive enough to cover critical thinking as with other 21st century skills. Earlier these practices were employed; sooner the learners can be critical thinkers with a willing consciousness which is an important trigger for thinking. Critical thinker students who are aware of the necessities in real life attend their learning process actively. They can be autonomous learners managing their capabilities appropriately to be active participants of their reasoning, problem solving, decision making processes which are key to learning and living in 21st century.

Learning a language is a complex phenomenon and it's not an easy process for students to gain literacy in a target language (Van Gelder, 2005). The learning can be easier and more effective if it is meaningful for the learners. However, language learning is trapped within the boundaries of classroom in traditional systems and the language use is not the focus in classroom practices. In that case, without the usability of language in their environment, many students cannot learn the language easily and willingly because it is not meaningful and reasonable for them. By emphasizing the necessity of international communication and collaboration, the educators create a global awareness in learners; and moreover, by providing real or real-like practice opportunities, they make learning English more desirable for learners. It's generally accepted that the younger the students start to learn a language, the better they can be proficient in it (Nunan, 2003). The same idea can be valid

for the planned thinking instruction. Earlier the learners gain competence in thinking, the more skillful they can be in applying it in their social and educational life. Equipped with a variety of skills in their mother tongue, learners already come to the English language teaching (ELT) classroom with a kind of familiarization with critical thinking (Pally, 1997). Language educators should benefit from this familiarization and guide students to develop the similar thinking skills in the target language. If the development of thinking skills is ignored in earlier ages in language classrooms, learners have to improve their own reasoning skills in real life when they encounter the target language in real context. However, this is a hard process in that it is missing the certain steps that can be more easily dealt with in training classrooms.

## 1.2. Purpose of the Study

21st century requires individuals to have certain skills to be evolved as conscious, responsible and well-qualified citizens of the global community. These qualifications are the basic requirements of the current time and they are necessary for the consistent improvement of people. Having an awareness and skillful management on universal issues like cultures, health, politics, education, finance, environment and etc., individuals can participate in the sustainability of international cooperation. Besides many other things, speaking a mutual language acts as a facilitator for a continuous partnership among global individuals. English is a tool for the conscious administration and management of the 21st century skills.  It is an indispensable necessity for individuals to communicate with each other to support the global collaboration.

Along with the content areas which are the main focus of the traditional educational systems, modern programs offer opportunities for individuals to enhance themselves on the

basic skills of the century. Managing these skills effectively in their learning process and individual life, learners can integrate their learning with the needs of era. By being aware of the requirements of the century, learners can choose the skills that they should get for themselves. Using those skills appropriately and efficiently, learners can become more proficient in managing their education process. Considering the importance of second language learning and accepting the viability of English as the most preferred second language, current programs try to adapt their curriculums to the needs of individuals, society and the present era. It's indispensable that the curriculums cover the basic 21$^{st}$ century issues and skills. The learners have to practice the skills in ELT classrooms with the enhancement of educators through authentic issues and real contexts. On condition that this practice starts from early ages with low proficiency groups, the learners gain the mastery in time on skills which they can employ during their learning journey and beyond, their everyday life. The successful skills management provides learners a smooth language learning process while using a second language helps a better mastery on skills. Among these skills, critical thinking is one of the most important necessities that the learners should have in order to evaluate and take control of their learning; analyze, evaluate and interpret the meaning in real or real-like texts; create appropriate suggestions and explanations for current issues; enhance effective communication with their peers and target population for the solution of national and international problems.

Regarding the significance of early practice in skills training, the present research emphasizes the integration of English language learning with critical thinking skills development in a secondary school with low proficiency level of EFL learners. This study aims to investigate whether it is possible or not to improve the students' abilities to think

critically in ELT classrooms. Incorporated with critical thinking emphasis, remodeled English course is evaluated to reveal the effectiveness of the course design through quantitative and qualitative analyses.

**1.3. Research Questions**

This study tries to answer the following research questions:

1. What are the critical thinking levels of the participants in the control and treatment groups before and after the instruction process?

2. Is there a significant difference between the pretest scores of the treatment group who has the English training integrated with critical thinking and control group who has the Standard English Curriculum?

3. Is there a significant difference between the pre- and posttest scores of the control group who gets the Standard English Curriculum?

4. Is there a significant difference between the posttest scores of the treatment group learners who get the English training integrated with critical thinking and the control group learners who get the Standard English Curriculum?

5. Is an English course design enhanced with critical thinking skills effective for EFL learners to improve their critical thinking in ELT classrooms?

   a. Is there a significant difference between the pre- and posttest scores of the treatment group?

   b. Is there an increase in the frequencies of the critical thinking behaviors defined in the observation checklist?

   c. What are the perceptions of the participants in treatment group on the effectiveness of critical thinking embedded English course design?

d.  What are the perceptions of the researcher on the effectiveness of critical thinking embedded English course design?

6.  What are the perceptions of the treatment group participants on

a.  the activities applied during the critical thinking embedded English instruction process?

b.  the materials used for the application of the critical thinking embedded English learning activities?

c.  the instructor's attitude towards them during the instruction process?

d.  the assessment ways preferred for the analysis and evaluation of students' improvement?

e.  the transferability of the course gains across their future learning experiences in English and other disciplines?

## 1.4. Significance of the Study

21$^{st}$ century requires modern perspectives in all fields of life including especially education. Current requirements of the century demand new abilities of individuals and basic qualifications of the educational systems. Along with the information gained through educational processes, this quality is affected by the learners' literacy of the information which is used to take part effectively in modern life. The programs focus on the learners who can manage the information through the appropriate analysis, interpretation, inference, evaluation, explanation processes and who can control their own learning progress in a self-regulative manner. These processes and regulative manner require a conscious use of critical thinking skills among many other 21$^{st}$ century skills and the present study emphasizes the infusion of critical thinking skills in English language instruction.

Cognitive natures of both language learning and critical thinking enhance the close association of them in that they require similar cognitive processes and they are believed to affect each other mutually in a positive way. Language instruction is more effective on condition that the learners can employ their thinking and their thinking develops better if the learners can use the target language as a tool for their individual and language development. Thus regarding the quality of a language instruction, most of the contemporary educational authorities admit that critical thinking should be integrated in English curriculum and ELT classrooms as in other disciplines. This study tries to find out if the critical thinking can be improved through appropriate critical thinking training integrated with a language learning curriculum.

As in other fields, critical thinking research is mostly implemented at college level with adult learners of language. There are few studies employed with younger students in secondary or primary schools. However, critical thinking is a key life skill that should be developed from the earlier ages of individuals and it should be integrated with all content areas that the learners participate in throughout their learning journey. This study is special in that it aims to observe the secondary school students' performance to think critically while learning English and try to make this performance better by employing a language learning curriculum supported with critical thinking emphasis.

**1.5. Limitations**

Though it tries to give insights on the teachability of critical thinking in ELT classrooms, this study has its own limitations. First of all, because of the experimental nature of research, there are only a limited number of students that the researcher can work with

which reduces the generalizability of results to other contexts. The results are limited with 62 7th grade students in a state school in Bilecik, Turkey.

Second limitation on the results is the content area of the research. This study is administered in ELT classes and it tries to develop the critical thinking capacities of learners during English courses. Activities used throughout the study aim the integration of critical thinking and language learning. So, the results are limited to an ELT context and cannot be generalized to other content areas.

Another limitation of the research is time constraints. Because of the formal processes of Turkish Ministry of National Education (MoNE), the study is administered throughout a term instead of the whole academic year. Thus, it is limited to the progress which can be achieved through the objectives, plans and activities under five units in the first term of the academic year.

The fourth limitation and important point of the study that needs to be taken into consideration is that the students cannot be ranked among each other and they cannot be evaluated as a poor or successful critical thinker. The aim is to observe the development of participants' critical thinking at the end of a critical thinking integrated language curriculum rather than to label them as successful or unsuccessful.

**Chapter 2**

**Literature Review**

**2.1. Living in 21st Century**

Living the 21st century is moving beyond an important threshold in modern world. There are new conceptualizations and perspectives in nearly all fields of society. Huge technological developments lead to the emergence of new perceptions of community. The concept of community is now regarded as free off the borders of nations. Individuals are now the global workers of the international economy, the mutual participants of the global heritage and international citizens of the global community.

As members of this global community, individuals need common communication ways to contact with each other and share their ideas and experiences on current controversial issues. Thinking English as "a global language", researchers emphasize the attainment of language skills in order to meet at a shared end (Crystal, 1997; Nunan, 2003). Considering that it is the common language in science and regarding its importance in making the international communication effective, English is out of the possession of countries and it belongs to the whole world. Individuals have rights on it to develop and move forward.

Along with the common language among individuals, the changing trends create a need for the skills that make the international collaboration possible. The necessity of enlightened citizens who are in a continuous change and development in order to carry on this collaboration requires the modern educational conceptualizations which make this continuity possible. In order to keep up with the changing and evolving life, education itself should be in a persisting improvement, too.

**2.2. Current Developments in Education Systems**

Education is among many other ways to be a part of global community and it is a mean to guide the individuals in their path to become international citizens and tomorrow's individuals. As Trilling and Fadel (2009) quote by Richard Riley, the Secretary of Education under Clinton, "we are currently preparing students for jobs that don't yet exist ... using technologies that haven't yet been invented … in order to solve problems we don't even know are problems yet" (p.3).

The concept of education has greatly changed in recent years. With the high reachability of sources, information is not the basic end of the education programs now. The students can reach the information easily from their environment; the real challenge is to use that effectively for their objectives. Thus, in modern education systems the aims have been evolved through the ones such as teaching students how to access reliable information, how to use that information for their objectives and how to manage this information gathering process skillfully. The learners, who get the essential data from reliable sources, can move forward to think critically, to make experiments, to analyze the situations, make comments, produce hypotheses, solve the problems, provide solutions, create new innovations and contribute to the emergence of unique ideas and new information. In order to lead this process and cope with the requirements of their time, students should be equipped with certain skills. Called as 21$^{st}$ century skills, critical thinking, information and technological literacy, social media management, communication through various ways, collaboration, creativity, innovation, problem solving, harmony with global society, sensitivity to the social and global issues are essential for people to get and use effectively throughout their individual, social and work life (Wagner, 2008). So, as a preparation for real life and as the life's itself,

contemporary education systems take the 21$^{st}$ century skills into their basis and prepare their programs regarding the needs and requirements of the time.

Learners who can internalize their education process and continue it as a lifelong endeavor can also make use of technology efficiently, communicate appropriately in various ways and collaborate with their peers effectively. Speaking the most popular language in the world helps the sustainability of life-long learning of individuals. English is the main language for a remarkable number of people from a great deal of fields. It is a common language for the collaboration of many communities on global issues. So learning English is beyond the foreign language learning concept; it's an essential requirement for being a global citizen who tries to create a change in his/her environment. Considering the needs of global citizens, ELT curricula have been evolving to living organisms shaped by the modern trends and basic requirements of the time. ELT programs which provide learners with scenarios covering problem solving in current issues from various content areas have gained popularity. Learners get into more collaborative and communicative tasks which give them real practice opportunities through authentic materials. They are required to be competent in English together with many other competency areas such as global awareness, technology literacy, communicative and collaborative competence, creativity, critical thinking and etc. which form the basic skills of the 21$^{st}$ century.

Turkey is a prospective country with an energetic and willing young generation which cannot be guided skillfully (British Council, 2013). Even though the country "doubles the coverage of the 15-year-olds who are enrolled in school" and moves up in the success list of PISA, there are still drawbacks affecting the reading, Math and Science scores of the students (OECD, 2019, p.10). Trying to keeping up with the global race and 21$^{st}$ century education,

Turkish Ministry of National Education (MoNE) has recently announced the 2023 Education

Vision of Turkey and released a comprehensive document on it. That document has

introduced the objectives in all branches and primary fields of national education (See Table

1). The Secretary of Education, Ziya Selçuk explained the main purpose of 2023 Education

Vision as "to raise individuals who are fond of science, curious about culture, sensitive,

qualified, with high moral values and are equipped with today's and future's skills and use

this equipment for the sake of man" (Ministry of National Education, 2018b, p.7).With an

emphasis on curiosity, scientific knowledge, continuous development and the students'

improvement as a whole, the new perception of education in Turkey has been evolving

through the education of modern era. Furthermore, taking the "human" and "moral" in its

basis, the vision document defines the 21$^{st}$ century learning of Turkey that focuses on the

lifelong learning supporting the individual development of students by being aware of their

capabilities and interests. Accepting the notion that the education is the life itself, lifelong

learning has gained popularity with the necessity of individuals' continuous development. In

order to fulfill the requirements of their social environment and economic conditions, people

need to continue learning throughout their lives.

Taking qualified thinking as one of the essential features of individuals, MoNE set

their principles regarding that the learners should be able to think critically and creatively in

order to meet the requirements of the era (MoNE, 2017). With this objective in their basis,

educational authorities have introduced the Thinking Education elective course in which the

students are trained to think analytically, critically, creatively and reflectively. In addition to a

specific course, the students from all grade levels are expected to develop their thinking skills

in all courses and in their real life. Teachers are motivated to be active participants in their personal development in that they can be perfect models for their students.

The National English Curriculum of Turkey matches the key focus of interests of the modern ELT trends around the world. The main issue is to raise individuals to communicate effectively in English in order to keep up with "economic, political and social progress in today's society" (MoNE, 2018a, p.4).  Improving learners as competent users of English who gain autonomy and take responsibility of their own learning is regarded as one of the aims of the ELT programs.

Foreign language education is one of the areas which take special attention in the 2023 Vision of Turkey. According to the Vision Document (MoNE, 2018b), there are three objectives;

1.  Foreign language education will be adapted to the proficiency levels and school types across the country.

2.  The students will be provided with new resources in order to experience the English speaking world.

3.  Teacher qualification and capabilities will be increased.

With an emphasis on the students' needs, students' experiences with real language, and teacher qualifications, the authorities try to improve the English literacy among learners in Turkey. Focusing on the authentic language, digital tools that boost the discussion and writing activities, individual development as a whole, methods and techniques regarding the individual needs, the priorities of the new language education perspective have been defined and described. However, it is believed that there are some mismatches with theory and practice. Despite huge and sufficient amount of class time given to the language course from

the beginning to the end of educational process, the students cannot communicate in English effectively (British Council, 2013). Furthermore, they lack the necessary skills of the century like CT which help them to achieve a successful language learning process (British Council, 2015; Kökdemir, 2003).

Table 1

*Primary Fields of Interest in Turkish National Curriculum*

| | |
|---|---|
| Educational Process that Regard Every Children Valuable | regarding interest, ability and character differences |
| | individualized, flexible and modular |
| | triggering curiosity |
| | revealing passion and courage |
| | giving priority to the development as a whole |
| | experience-focused |
| | giving time to the deepening of learners |
| | using assessment for the development of students |
| Teacher and School Administers who give life to the system | taking sympathy and humanity on the center of their work |
| | feeding from the individual differences of children |
| | supporting social development |
| | eliminate the obstacles in learning |
| | highlighting the student participation |
| | creating a rich classroom environment |
| | following the leadership of science |
| | open to the innovations, improving themselves |

| Reliable School Environment which have the Vision for Continuous Development | guaranteeing the physical and emotional confidence |
|---|---|
| | taking the continuous development as a vision |
| | motivating the students and teachers, making them feel valuable and happy |
| | developing its environment |
| | giving life to the skills |
| | with increased facilities |
| | taking the initiatives and responsibilities for their actions |
| | managing the resources in line with the school development plan |
| Open/Effective Governance and Governors | deciding based on the data |
| | supporting the schools' development vision |
| | sharing with civil society organizations and academic world |
| | regarding the priorities in the workplace |
| | giving importance to the merit |
| | decreasing the bureaucracy |

Source: MoNE 2023 Vision Document, 2018

## 2.3. 21st Century Skills

21st century skills are the competencies that the individuals should have in order to live a qualified life, manage the complex situations and solve the problems in their social, economic and academic life. Skills such as the mastery at technology, digital literacy, financial literacy, global awareness, innovation and creative thinking, critical thinking, reasoning and problem solving, social development, collaboration and communication are necessary components of the modern life and so they should be at the heart of modern

education. Current education environments should be designed in a way that they could develop students' abilities to adapt these skills in their life. Furthermore, raising the students and families' awareness on essential skills is a crucial impetus for the success in core subjects at school and basic competencies in life.

Even though they focus on the shared and common skills, there are a number of well-known frameworks of 21st century skills. Based on their own perceptions, different sources attribute different groups for the same skills. However they address to the similar abilities most commonly even if they name it under another title (Lamb, Maire & Doecke, 2017).

Assessment and Teaching of 21st Century Skills (ATC21S) Organization which was founded by Cisco, Intel and Microsoft to enhance ICT and assessment of 21st century skills has offered one of the most common frameworks in the field. The framework includes four categories of skills: (1) ways of thinking including creativity and innovation; critical thinking, problem solving, and decision-making; and metacognition or learning to learn; (2) ways of working including communication and collaboration or teamwork; (3) tools for working including information literacy and information and communication technology (ICT) literacy; (4) living in the world including citizenship, life and career skills, and personal and social responsibility (Binkley et. al, 2010).

National Research Council of USA offered another framework in which it categorizes the 21st century skills under three groups. It covers (1) cognitive skills which encompasses CT, non-routine problem solving, and systems thinking; (2) interpersonal skills which includes complex communication, social skills, teamwork, cultural sensitivity, and dealing with diversity; (3) intrapersonal skills which encompasses self-management, time

management, self-development, self-regulation, adaptability, and executive functioning (Committee on the Assessment of 21st Century Skills, 2011).

The researchers, educational authorities, leaders, teachers and institutions who support education from many countries around the world take the 21st century education change seriously and they have become a part of the movement called P21. Its mission is to make the 21st century education common, possible and reasonable among the citizens of the global world. To reach out this aim, the researchers emphasize the importance of certain skills and describe the necessary 21st century skills that should be integrated with content study (Partnership for 21st Century Learning [P21], 2015). It cooperates with research environments and measures the effectiveness of the frameworks it has provided to teachers for the instruction of students from kindergarten to 12th Grade on 21st century skills. It tries to collaborate and communicate with educational environments from all over the world in order to create a supportive basis for 21st century learning. P21 groups 21st century skills into three main categories (Trilling and Fadel, 2009) as (1) learning and innovation skills which includes creativity and innovation, critical thinking and problem solving, and communication and collaboration; (2) digital literacy skills which covers information literacy, media literacy, and information/communications/technology literacy; (3) career and life skills which entails flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

Table 2

*Partnership for 21st Century Learning (P21) Categorization of 21st Century Skills*

| Learning and innovation skills | Critical thinking and problem solving |
|---|---|
| | Communication and collaboration |

| | Creativity and innovation |
|---|---|
| Digital literacy skills | Information literacy |
| | Media literacy |
| | Information and communication technologies (ICT) |
| | literacy |
| Career and life skills | Flexibility and adaptability |
| | Initiative and self-direction |
| | Social and cross-cultural interaction |
| | Productivity and accountability |
| | Leadership and responsibility |

In P21 research series, the researchers define the 21st century skills in detail and they provide a detailed analysis and a comprehensive source for the educational authorities, educators and learners on the changing system of 21st century learning (P21, 2015). Accepting that "all learners need educational experiences in school and beyond, from cradle to career, to build knowledge and skills for success in a globally and digitally interconnected world", the authors have tried to give an empirical basis for the controversial issues on the 4Cs of modern educational trends including critical thinking (Ventura, Lai & DiCerbo, 2017, p.2). Defined as 4Cs of 21$^{st}$ century, critical thinking, creativity, communication and collaboration are the essential skills that the students must have in order to support their content knowledge on the core subjects such as science, math, social sciences, art, foreign language, literature and etc.

**2.3.1. Creativity.** Along with its importance and place in art, creativity is a necessary life skill that every individual should have to create unique ideas and innovations on the

global and controversial issues related to economy, environment, health, society, education and etc. (Guilford, 1970). Generally regarded as a vague concept which is hard to define clearly, most creativity definitions emphasize the novelty, appropriateness, uniqueness, usefulness and adaptiveness (e.g. Amabile, 1996; Runco & Pritzker, 2011; Sternberg, 1999). In order to meet the requirements of global systems, individuals should be creative enough to produce novel and appropriate ideas for unique, rare, useful and adaptive solutions. Creativity in a modern manner is thought beyond its boundaries within art; it's commonly associated with innovation, divergent and creative thinking which are the necessary components of modern life to solve problems.

As one of the 4Cs of 21st century and a key skill that the P21 researchers provide a comprehensive framework, creativity is categorized under the learning and innovation skills (Partnership for 21st Century Learning, 2015). Therefore, it is essential to cover creativity training in school curriculums together with the core subjects (Craft, 2005; Cropley, 2011; Fasko, 2001; Kaufman & Sternberg, 2006; Plucker, Beghetto & Dow, 2004; Runco, 2003; Sternberg, 1999; Torrance, 1967). Defined as "the ability to come up with new ideas that are surprising yet intelligible, and also valuable in some way" creativity should be taught in classrooms (Boden, 2001, p.95).

Creativity is a necessary component of language instruction together with the basic receptive and productive skills (Carter, 2004; Cremin, 2009; Kabilan, 2000; Maley & Peachey, 2015; Papalazarou, 2015; Tomlinson, 2015). Knowing and speaking a language cover a specific amount of creativity and creative thinking in that the ongoing process of communication requires individuals to find new words, phrases, sentences and statements at the pace of thinking. Producing different ideas on various issues is a trigger for creativity and

successful communicators are good at thinking creatively (Amabile, 2019). Modern foreign language learning curricula focus on creativity in language classrooms and the integration of creative thinking with the content of the course is encouraged. Generating a meaningful language is a creative act which requires a willing creative thinking and this thought can be developed along with language skills (Gürsoy & Bağ, 2018). Furthermore; along with the creative thinking which is a part of whole learning process, activities which support the employment of product-based creativity enhance a sense of motivation and self-confidence among learners to internalize the language and reach out the learning while producing a piece of real work in the target language.

**2.3.2. Communication.** Communication is an indispensable life skill of man in order to survive in a community and to adapt their environment. Though every individual can communicate in a way, skillful communication for being visible and realizing the objectives requires special attention and a willing effort. In order to communicate effectively, one has to manage CT, creativity and collaboration skills efficiently (Larson & Miller, 2011), use nonverbal communication tools skillfully, be competent in using digital and social media (Alvermann & Sanders, 2004), be aware of the interdisciplinary relationships and follow up the written and unwritten cultural and ethical norms of communication (Black, 2009). As a P21 member, Erin Wilkey Oh states in communication skill framework, "to communicate successfully in our personal, academic, and professional lives, we need technical know-how, an understanding of the protocols and norms of various digital tools, intrapersonal communication skills that support interactions with a wide variety of people, and a developed awareness of how to use technology safely and responsibly" (P21, 2015, p.4).

Coined by Hymes (1972) to emphasize the social and communicable function of the linguistic components, communicative competence is a necessary criterion that every individual should have in their personal, social and professional life. As global citizens, the individuals should communicate with the whole world meaningfully in order to meet at a shared end. Learning foreign languages, being adequate in digital literacy and applying the universal norms of social-interaction are necessary steps in order to manage the global communication process competently. Modern education programs raise individuals who are able enough to get through today's highly globalized, digital and universal communication systems. Therefore the innovative curriculums cover the communication as with other 21st century skills. The comprehensive literature review by Walsh and Paul (1986) on critical thinking research has shown that there is a strong correlation between the development of communication skill and thinking skills through which the individuals make sound analysis and judgements, listen to their target effectively and so manage the interpersonal relationships skillfully.

Knowing more than one language enhances the global communication and one of the main aims of current education systems is to make individuals capable of communicating effectively in the global world. Linguistic knowledge in a target language should be boosted with communicative competence (Bachman & Palmer, 2010; Canale & Swain, 1980; Hymes, 1972; Skehan, 1995; Widdowson, 1983) which they can perform well if it is integrated with other skills of the century. Planned and applied in an appropriate way, a language training program provides the learners with real-world or real-like communication opportunities. If the conditions are convenience only for in-class applications, through the help of digital media, students can practice the authentic language with real people whereas by using the

controversial situations and authentic materials, they can improvise the real-like communication.

With the spread of technology, digital media tools are undeniable part of communication among individuals. Through the use of social medial, people can communicate beyond the boundaries of nations and countries. They can reach the global world and they contribute to the global heritage. However, without the special training in how to use social media communication effectively, some ethical issues have come up lately (Besley, Dudo & Storskdieck, 2015). With the ignorance of respect, morality and cultural considerations, people offend their targets. Therefore social media education is a branch of communication skill training in 21st century.

**2.3.3. Collaboration.** Being one of the interrelated skills of the 21st century, collaboration is the meeting of individuals with different identities, background, capabilities on a common interest and a shared objective in order to make reasonable judgements, produces ideas and creates solutions on the current issues (Bialik & Fadel, 2015). Global collaboration is far from the restriction of boundaries and face to face interaction; people can collaborate with the ones whom they have never met in the workplace and academic fields (Dede, 2010).

As a core method that can be employed in modern classrooms, collaboration and cooperative learning activities are common in all core subject areas and 21st century skills training. According to some researchers there is a distinction between the concepts of collaboration and cooperation in that the cooperation requires a labor share between the participants while in collaboration the labor is handled with all the participants' mutual share and that in cooperative activities coordination is needed in the phase of bringing together the

split results whereas collaboration requires a full time coordination among the individuals (Dillenbourg, Baker, Blaye & O'Malley, 1996). Full time coordination requires a skillful management of the process and many other variables; therefore, collaboration goes hand in hand with other skill areas. The research on collaboration is generally administered through the integration of collaboration with other core subject and skill training studies (e.g. Alber, 2017; Gokhale, 1995; Simpson, 2006). Individuals' mastery on communication skills is very important in order to make them collaborate continuously and efficiently. In current educational environments, the learners are encouraged to debate on the issues, ask questions, make reasonable judgements and express their opinions in order to negotiate the meaning for the common objectives (Alber, 2012).

Critical thinking and collaboration have been popular research areas in the field in that the studies have tried to understand whether the group dynamics and interaction enhance the critical thinking skills of the learners or not (Adams & Hamm, 1990; Gokhale, 1995; Simpson, 2006; Styron, 2014). Collaborative activities in which the students can communicate with each other in order to debate on and find solutions to the given problems are among the mostly used activities in modern classrooms. "Controversial tasks without single answers" are example for such activities and they covers the tasks like "solve complex problems", "find the main idea of paragraphs" in order to help students understand each other's' "thinking processes" (Slavin, 1995, p.12).

Collaborative language learning is popular among foreign language learning environments and research field (Dörnyei, 1997; Gunderson & Johnson, 1980). The aim of the language instruction is to make learners literate in the target language so that they can communicate with their environments. One of the best ways to make them communicate in

learning environments is to create real-like concepts and situations. Therefore, collaboration is quite natural in language learning. Small group tasks, pair works, debates, jigsaw activities, group discussions, peer assessments are among the collaborative activities which are mostly used in language classrooms. Dörnyei (1997) asserts that in order to be collaborative in nature, the courses (1) cover the collaborative learning activities in which the students work in their small groups for most of the class time, (2) should be structured beforehand, (3) should be evaluative and rewarding for the groups of students.

**2.3.4. Critical Thinking.** Going back to earliest times in history, "critical" has derived from the word "kritikos" which means to question. Emphasizing the importance of questioning and reasoning in all fields of life, critical thinking is beyond the limited perspectives which trap it into only the adults' academic and work life; it is a key requirement for the continuity of life in modern era (Connor-Greene & Greene, 2002) and it is an important tool in order to cope with the current changes in global issues and the possible challenges in the future (Leu et al., 2011).

The recent shifts in technology have increased the necessity of critical thinking to be employed by individuals to get used to the innovations and to use the technology effectively (Halpern, 1999). Modern individuals need to analyze and manage the huge amounts of data that they can reach in a very short time. This management requires the technological literates who can employ solid critical thinking skills appropriately. However, in modern societies individuals without the necessary dispositions and skills to think critically cannot manage the information gathering process skillfully; they cannot assess the credibility and source of information properly. According to Vega and Robb (2019), one of the key findings of the Common Sense 2019 Report is that the "students lack skills to critically evaluate online

information" (p.7). They tend to accept all of it without questioning, which is quite a serious situation that needs to be considered deeply.

Considering its significance in the appropriate questioning of the concepts and issues, critical thinking is a highly valued 21st century skill that takes the attention of the various research environments such as philosophy, psychology and education (Ennis, 1962, 1989; Facione, 1990; Fisher, 2001; Glaser, 1941; Halpern, 1993, 1997; McPeck, 1981, 1990; Norris, 1985; Norris & Ennis, 1989; Paul, 1989, 1990; Paul & Elder, 2006; Siegel, 1980; Watson & Glaser, 1980). Categorized as a learning and innovation skill by P21 experts, it is regarded as a core concept in current educational systems. Rather than being an educational option and objective that is tried to be reached, critical thinking is a compulsory element of education which requires special attention and effort "because being able to think critically is a necessary condition for being educated ..." (Norris, 1985, p.40). Students who are able "to think well and to think for themselves" are more successful in coping with the issues and create rational solutions (Pithers & Soden, 2000, p.237). For a short term aim, students who can make critical analysis and judgments are better students and they succeed in their challenges to be a contributing adult and moreover; while in a broader societal sense the critical thinker individuals who can make perfect analyses contribute much to the sustainable development of democracy (Abrami, et al., 2008).

**2.4. The Definitions of Critical Thinking**

Though it can be dated to the ancient times with Socratic thinking which encourages individuals to rethink about their thinking and justify their claims, the modern concept of critical thinking was developed by John Dewey in the form of "reflective thinking". Dewey (1909) defined reflective thinking as "active, persistent, and careful consideration of a belief

or supposed form of knowledge in the light of the grounds which support it and the further conclusions to which it tends" (p. 9). Dewey emphasizes the importance of the self-directive nature of critical thinking in that the individuals need to think for themselves. Furthermore, he focuses on the background which supports the knowledge and on the conclusion which is affected by that knowledge. He takes attention to the "skillful reasoning" with "the reasons we have for believing something and the implications of our beliefs" (Fisher, 2001, p.3).

As an important figure, Dewey affected the researchers from psychological, philosophical and educational research backgrounds and the critical thinking definitions focus on the common or similar conceptions to some extent. According to Glaser (1941), critical thinking is "an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experience; knowledge of the methods of logical enquiry and reasoning; and some skill in applying those methods" (Glaser, 1941, p. 5).

Reasoning is a key issue in Glaser's perception of critical thinking together with the dispositions and skills that are needed to employ the methods of thinking willingly to make inquiries. He also emphasizes the necessity of "persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends" which is a similar description with John Dewey's (Glaser, 1941, p. 5).

One of the most prominent researchers in the field of critical thinking, Robert Ennis also points out "reasonable" and "self-directive thinking" with a "decision making" emphasis and introduces a highly valued and mostly quoted definition: "critical thinking is a reasonable and reflective thinking that is focused on deciding what to believe or do" (Norris and Ennis, 1989, p.1). Although it is a generally accepted definition, it fails to explain the necessary

cognitive aspect of critical thinking. The studies have moved towards the training of thinking skills rather than the philosophy of it so the recent definitions emphasize the cognitive nature of critical thinking. In the 8th Annual International Conference on critical thinking and Education Reform, Scriven and Paul (1987) described critical thinking as "the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action" (Scriven & Paul, 1987).

With the initiative of American Philosophical Association (APA), a Delphi method was employed in order to reveal the ideas and expertise of prominent experts on critical thinking. Directed by Peter Facione, the Delphi Panel started in February, 1988 and ended in November, 1989. It tried to explore the wisdom of panelists who "worked toward consensus by sharing their reasoned opinions and being willing to reconsider them in the light of the comments, objections and arguments offered by other experts" (Facione, 1990, p.2). Focusing on the essential cognitive skills that underline the critical thinking process, Delphi researchers have generally agreed on the critical thinking perception as "purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or conceptual considerations upon which that judgment is based" (Facione, 1990, p.3).

According to the cognitive scientists, critical thinking is related to the "reasoning, making judgments and decisions, and problem solving" (Willingham, 2007, p.11). Reasoning, making judgments and decisions, problem solving, critical inquiry, evaluating the reliability of issues and sources and etc. are accepted as core cognitive skills and;

> Critical thinking is the use of those cognitive skills or strategies that increase the probability of a desirable outcome. It is used to describe thinking that is purposeful, reasoned, and goal directed – the kind of thinking involved in solving problems, formulating inferences, calculating likelihood, and making decisions when the thinker is using skills that are thoughtful and effective for the particular context and type of thinking task. (Halpern, 1997, p.6)

Supporting the view that critical thinking is a kind of thought that can be used by anyone rather than being a skill, Willingham (2007) defined "effectiveness, novelty and self-direction" as the key features of critical thought. Effective thinking without the boundaries of prejudices is novel in that it requires the innovative solutions to the problems in a self-directed way which is led by the critical thinker's own willingness and expertise.

## 2.5. Dimensions of Critical Thinking

Although there are strong believers against critical thinking (CT)'s recognition as a skill (e.g. Atkinson, 1997; Willingham, 2007); CT is mostly regarded as a skill that should be supported with certain attitudes and characteristics (Edman, 2008; Facione, 1990; Halpern, 1999). Called as dispositions, these attitudes and characteristics guide the individuals in a way to participate actively and willingly in their CT process. Individuals "must be disposed to think critically as well as have the skills to do so" (Facione, 2015, p.2). According to the generally accepted idea; CT is beyond the employment of "right skill in an appropriate context", "it is also an attitude or disposition to recognize when a skill is needed and the willingness to exert the mental effort needed to apply it" (Halpern, 1999, p.72).

In a traditional manner, the psychologists and philosophers differ in their perception of CT and "while cognitive psychologists tend to emphasize the cognitive processes and ways

of thinking that define critical thinking, philosophers tend to outline the ideal dispositions and attributes of a critical thinker" (Lamb, Maire & Doecke, 2017, p.19-20). The psychologists tend to describe "the actions and behaviors" that the critical thinkers achieve; while the philosophers focused on the ideal critical thinkers' essential dispositions and characteristics (Lai, 2011). However, accepting the importance of both skills and dispositions, the researchers today generally with educational backgrounds tend to regard the two concepts as a whole and to include them in training and assessment process effectively (Edman, 2008). D'Angelo (1971), one of the first researchers who talk about CT and dispositions making it possible, supports the idea that CT skills and dispositions affect each other mutually. While CT improves an individual's management of certain attitudes and beliefs, the individual should have those skills and beliefs in order to think critically (D'Angelo, 1971).

   **2.5.1. CT skills.** Bloom was one the most prominent names regarding the research field of higher order skills. He offered "two-dimensional taxonomy for learning" (Beaumont, 2010, p.3). His framework covers a knowledge dimension in which he describe four kinds of knowledge; (1) factual, (2) procedural, (3) conceptual, (4) metacognitive, and a cognitive process dimension which includes six steps of thinking (1) remember, (2) understand, (3) apply, (4) analyze, (5) evaluate, (6) create (Bloom, 1956). This cognitive process of thinking forms the basis of various frameworks offered by CT researchers.

   In the APA Delphi Study conducted to define CT and create a valid conceptual framework for it, the participant experts (Facione, 1990) emphasize that although there are some conceptual overlaps from time to time, it is important to distinguish between the skills. Not every higher order skill is a CT skill. CT is a higher order skill like problem solving, decision making and creative thinking however it is not the same with those in that it doesn't

contain procedural sequences as in decision making and problem solving (Beyer, 1988) and it is a different phenomenon from creative thinking. They underline that it covers the certain abilities and a specific attitude for understanding the necessity of these abilities and using them willingly. Accepting the importance of acquiring both cognitive skills and dispositions to think critically, the experts have defined two dimensions for a good critical thinker: a cognitive skill dimension and a dispositional dimension. According to the Delphi report, CT covers six core cognitive skills: (1) interpretation, (2) analysis, (3) evaluation, (4) inference, (5) explanation and (6) self-regulation (See Table 3). "Interpretation" is the first CT skill defined by the researchers at the meaning level to understand the meaning and decoding the significance of the concepts, situations, and etc. It includes "categorization", "decoding significance" and "clarifying meaning" sub-categories which refer to the steps for gaining the interpretation skill. "Analysis" is the ability of making inferences between the actual meaning of the statements, opinions, etc. and their planned messages. It consists of "examining ideas", "detecting arguments" and "analyzing arguments" subskills which require the analysis skill. "Evaluation" is the skill to make assessments questioning the reliability and accountability of the expressions, definitions and etc. It covers "assessing claims" and "assessing arguments" skills for making a detailed credibility check to the various representations of meaning. The fourth skill is "inference" which is related to making identifications about the conclusions, creating hypotheses and consequences related to the concepts, statements. It includes "querying evidence", "conjecturing alternatives" and "drawing conclusions". "Explanation" is having the ability of reasoning and to establish grounds for that reasoning depending on various considerations. The skill has "stating results", "justifying procedures" and "presenting arguments" as its subskills. "Self-regulation" is the last basic skill focusing on the

metacognitive awareness which the critical thinkers should have and employ effectively to take the responsibility of their own thinking skills and to make sound analyses and adjustments on their thought processes. It covers the "self-examination" and "self-correction" subskills.

Table 3

*CT Cognitive Skills and Subskills*

| CT Cognitive Skills | CT Cognitive Subskills |
|---|---|
| **1.Interpretation** | Categorization |
| | Decoding Significance |
| | Clarifying Meaning |
| **2.Analysis** | Examining Ideas |
| | Identifying Arguments |
| | Analyzing Arguments |
| **3.Evaluation** | Assessing Claims |
| | Assessing Arguments |
| **4.Inference** | Querying Evidence |
| | Conjecturing Alternatives |
| | Drawing Conclusions |
| **5.Explanation** | Stating Results |
| | Justifying Procedures |
| | Presenting Arguments |
| **6.Self-Regulation** | Self-examination |
| | Self-correction |

(Facione, 1990, p.15)

Beyer (1988) introduces a CT skills list which shares some similar cognitive
components with the Delphi experts but distinguishes its exclusion of self-regulative
components (Table 4).

Table 4

*Beyer's List of CT Skills*

| |
| --- |
| Distinguishing between verifiable facts and value claims |
| Distinguishing relevant from irrelevant information, claims, or reasons |
| Determining the factual accuracy of a statement |
| Determining credibility of a source |
| Identifying ambiguous claims or arguments |
| Identifying unstated assumptions |
| Detecting bias |
| Identifying logical fallacies |
| Recognizing logical inconsistencies in a line of reasoning |

(Beyer, 1988)

Ennis (1991) use the word "ability" for his list of cognitive competencies of CT. His
list is in a kind of hierarchical progress as he differentiates between the elementary and
advanced clarification abilities, which is not preferred way of presentation in Delphi
panelists' description of CT skills (Table 5).

Table 5

*CT Abilities*

| | |
| --- | --- |
| Elementary Clarification | Focusing on a question |

|  |  |
|---|---|
|  | Analyzing Arguments |
|  | Asking and answering questions of clarification and challenge |
| Basic support | Judging the credibility of a source |
|  | Observing and judging observation reports |
| Inference | Deducing and judging deductions |
|  | Inducing and judging inductions |
|  | Making and judging value judgments |
| Advance Clarification | Defining terms and judging definitions |
|  | . Identifying assumptions |
| Strategy and Tactics | . Deciding on an action |
|  | . Interacting with others |

(Ennis, 1991, p.54,55,56)

CT covers the cognitive skills and affective dispositions in its nature and the development of it is possible through the emphasis on certain cognitive and affective thinking strategies. Paul, Binker, Martin and Adamson (1989) have devised a comprehensive list of strategies covering (A) affective strategies, (B) cognitive strategies–macro-abilities, (C) cognitive strategies–micro-skills with all their theoretical backgrounds and practical applications (see Table 6).

Table 6

*Strategy List: 35 Dimensions of Critical Thought*

| | |
|---|---|
| **Affective** | S-1 thinking independently |
| **Strategies** | S-2 developing insight into egocentricity or sociocentricity |
| | S-3 exercising fairmindedness |

S-4 exploring thoughts underlying feelings and feelings underlying thoughts

S-5 developing intellectual humility and suspending judgment

S-6 developing intellectual courage

S-7 developing intellectual good faith or integrity

S-8 developing intellectual perseverance

S-9 developing confidence in reason

**Cognitive Strategies - Macro- Abilities**

S-10 refining generalizations and avoiding oversimplifications

S-11 comparing analogous situations: transferring insights to new contexts

S-12 developing one's perspective: creating or exploring beliefs, arguments, or theories

S-I3 clarifying issues, conclusions, or beliefs

S-14 clarifying and analyzing the meanings of words or phrases

S-15 developing criteria for evaluation: clarifying values and standards

S-I6 evaluating the credibility of sources of information

S-17 questioning deeply: raising and pursuing root or significant questions

S-18 analyzing or evaluating arguments, interpretations, beliefs, or theories

S-I9 generating or assessing solutions

S-20 analyzing or evaluating actions or policies

S-21 reading critically: clarifying or critiquing texts

S-22 listening critically: the art of silent dialogue

S-23 making interdisciplinary connections

S-24 practicing Socratic discussion: clarifying and questioning beliefs, theories, or perspectives

S-25 reasoning dialogically: comparing perspectives, interpretations, or

theories

S-26 reasoning dialectically: evaluating perspectives, interpretations, or

theories

**Cognitive**    S-27 comparing and contrasting ideals with actual practice

**Strategies -**    S-28 thinking precisely about thinking: using\ critical vocabulary

**Micro-**    S-29 noting significant similarities and differences

**Skills**    S-30 examining or evaluating assumptions

S-31 distinguishing relevant from irrelevant facts

S-32 making plausible inferences, predictions, or interpretations

S-33 evaluating evidence and alleged facts

S-34 recognizing contradictions

S-35 exploring implications and consequences

(Paul et al., 1989, p.56)

**2.5.2. CT dispositions.** Skills-based approaches in CT research field are valid and

reasonable in that they provide a solid basis for learners to have skills to think critically.

However, having CT skills not enough for individuals to become excellent critical thinkers

(Edman, 2008). The individuals should have certain attitudes to make CT persistent in their

reasoning and decision-making process. These attitudes are dispositions which are interrelated

with skills and one has to have CT dispositions as well as the skills to apply the CT

appropriately. Dispositions are the affective characteristics that are necessary for the

employment of CT skills effectively in real life. It is not enough to know how to find fallacies

in the arguments; appropriate and a well-formed thinking requires individuals to employ and

manage those analysis and judgment skills on their own thinking process (Paul, 1995). Paul

asserted that "thinking critically begins with an attitude of being disposed to consider in a

thoughtful, perceptive manner the problems and subjects of one's life" (Paul, 1986, p.14).

According to the Delphi study experts, training individuals for the development of

cognitive CT skills is not enough for them to evolve as good and ideal critical thinkers; they

also need to have affective dispositions to think critically (see Table 7). "A person who is

proficient in a given skill can be said to have the aptitude to execute that skill", therefore the

learners should be modeled in educational environments to behave as a critical thinker and

they should feel free and motivated to think for themselves and take the responsibility for

their own thinking process (Facione, 1990, p.11).

Table 7

*Affective Dispositions of CT*

| | |
|---|---|
| Approaches to Life and Living in General | *inquisitiveness with regard to a wide range of issues, |
| | * concern to become and remain generally well-informed, |
| | * alertness to opportunities to use ct, |
| | * trust in the processes of reasoned inquiry, |
| | * self-confidence in one's own ability to reason, |
| | * open-mindedness regarding divergent world views, |
| | * flexibility in considering alternatives and opinions, |
| | * understanding of the opinions of other people, |
| | * fair-mindedness in appraising reasoning, |
| | * honesty in facing one's own biases, prejudices, stereotypes, egocentric or sociocentric tendencies, |

| | |
|---|---|
| | * prudence in suspending, making or altering judgments, |
| | * willingness to reconsider and revise views where honest |
| | *reflection suggests that change is warranted. |
| Approaches to | *clarity in stating the question or concern, |
| Specific | * orderliness in working with complexity, |
| Issues, | * diligence in seeking relevant information, |
| Questions or | * reasonableness in selecting and applying criteria, |
| Problems | * care in focusing attention on the concern at hand, |
| | * persistence though difficulties are encountered, |
| | * precision to the degree permitted by the subject and the circumstance. |

(Facione, 1990)

Taking the dispositional conceptualizations of Delphi Report (1990) into the basis, Facione (2000) defined dispositions as "consistent internal motivations to act toward or respond to persons, events, or circumstances in habitual, yet potentially malleable ways" (p.64). With an emphasis on the integration of skills and dispositions in critical training, Facione and Facione (1992) assert that the measurement of CT is not complete without a whole perception of it. The assessment of dispositions is essential in order to measure the capacity of learners to think critically and to understand their aptitude for the employment of CT. They developed the first instrument, the California Critical Thinking Dispositions Inventory (CCDTI), for the measurement of seven dispositions: (1) Inquisitiveness, (2) Systematicity, (3) Analyticity, (4) Truth-seeking, (5) Open-mindedness, (6) CT Self-confidence, and (7) Maturity (See Table 8).

Table 8

*Facione's List of CT Dispositions*

| | |
|---|---|
| Inquisitiveness | "one's intellectual curiosity and one's desire for learning even when the application of the knowledge is not readily apparent" |
| Systematicity | "being organized, orderly, focused, and diligent in inquiry" |
| Analyticity | "prizing the application of reasoning and the use of evidence to resolve problems, anticipating potential conceptual or practical difficulties, and consistently being alert to the need to intervene" |
| Truth-seeking | "being eager to seek the best knowledge in a given context, courageous about asking questions, and honest and objective about pursuing inquiry even if the findings do not support one's self-interests or one's preconceived opinions" |
| Open-mindedness | "being tolerant of divergent views with sensitivity to the possibility of one's own bias" |
| CT Self-confidence | "trusting the soundness of one's judgments and leading others in the resolution of problems" |
| Maturity | "approaching problems, inquiry, and decision making with a sense that some problems are necessarily ill-structured, some situations admit of more than one plausible option, and many times judgments must be made based on standards, contexts and evidence which preclude certainty" |

(Facione & Facione, 1992, p.4-5)

Regarding his previous definition for CT as vague and excluding the creative aspect of CT, Ennis (1993) proposed a set of abilities and dispositions a critical thinker

characteristically should have (see Table 9). He asserts that this list of abilities and

dispositions can help to conceptualize CT, create a goal basis for the training and form a basic

for the assessment of CT (Ennis, 1993).

Table 9

*Ennis's List of CT Dispositions*

| |
| --- |
| Seek a clear statement of the thesis or question |
| Seek reasons |
| Try to be well-informed |
| Use credible sources and mention them |
| Take into account the total situation |
| Try to remain relevant to the main point |
| Keep in mind the original or basic concern |
| Look for alternatives |
| Be open-minded |
| . Take a position (and change a position) when the evidence and reasons are sufficient to do so |
| . seek as much precision as the subject permits |
| . Deal in an orderly manner with the parts of a complex whole |
| . Use one's CT abilities |
| . Be sensitive to the feelings, levels of knowledge, and degree of sophisticated of others |

(Ennis, 1991, p.54).

## 2.6. Critical Thinking and Its Pedagogical Implications

There is a notion that CT is not a skill which can be learned through a specific

educative emphasis (Willingham, 2007). Some researchers underline that it cannot be taught

as a process or it is too hard and vague to be taught in educational contexts (McPeck, 1990;

Simpson & Courtney, 2002; Willingham, 2007). According to Willingham (2007), despite

decades of endeavors focusing on the placement of CT for a better education, there are still

problems in education and the CT cannot still be regarded as improved for many individuals

(Willingham, 2007). He thinks that the main reason for this failure is because of the fact that

"critical thinking is not a set of skills that can be deployed at any time, in any context"

(Willingham, 2007, p.10). Some researchers assert that instead of a cognitive skill, it must be

conceived as a "social practice" (e.g. Atkinson, 1997; Gieve, 1998; Ramanathan & Kaplan,

1996; Resnick, 1987). This social practice is thought to be the missing part in

decontextualized cognitive based training of CT and it is the basic controversial issue on the

integration of CT training and foreign language learning. The researchers believe that CT is a

cultural-based phenomenon improved throughout the whole lives of individuals which makes

some communities and countries disadvantaged because of their belief systems and cultural

norms (e.g. Atkinson, 1997; Gieve, 1998; Ramanathan & Kaplan, 1996; Willingham, 2007).

The second issue on CT improvement is whether it is unconscious or not. The

conscious-unconscious distinction on the nature of this process bears the questioning of the

necessity of CT training in educational environments. Atkinson (1997), for example, asserts

that CT can be acquired through an "unconscious process of socialization during childhood"

not through a specific instruction process in educational contexts (Benesch, 1999, p.574).

However, on condition that they reject the training of CT by emphasizing that it has an

unconscious and unreflective nature, educators and researchers may accept the absence of

qualified questioning for the continuous change and developments among individuals

(Benesch, 1999). Agreeing on the view that CT is a social practice, Gieve (1998) disapproves

the unconscious nature which Atkinson asserts; on the contrary, he defines CT as a "reflective social practice" through which the individuals think beyond the accepted norms and gain the essential questioning abilities (p.24).

Regardless of the controversies on the teachability of it, a great deal of researchers, educators and learners believe in the importance of training in the necessary CT abilities in educational contexts. Differentiating between the qualified thinking skills and regular thinking which evolve in time without the need for a deliberate attention, most of the researchers in the field have indicated that qualified thinking is a teachable skill which requires a specific instruction (e.g. Beyer, 1988; Chance, 1986; Ennis, 1989; Halpern, 1993, 1999; Lipman, 2003; Siegel, 1980; Walsh & Paul, 1986; White & Burke, 1992). Emphasizing the significance of CT integration not only as an "addition to the curriculum" but also as a "fundamental to our educational endeavors", Siegel (1985) has presented some reasons to encompass CT in educational contexts. First, it is important to take morality into the basis of any ideal because it covers behaving in a good manner through which the students feel respected and precious to express their ideas freely. The second justification for CT inclusion into the school programs is that the need for the individual development of students to get prepared for a successful adult life. In order to reach out the full potential, the children need a kind of reinforcement and training in CT skills thus they can take the responsibility for their own development in time. The third reason is about the reasoning skills of the students. As it is a preparation of the basic traditions in human rationality, education provides students with a lot of practice to create reasons and evaluate them properly.

CT training has a long history in that the educators usually accept the importance of improving students' reasoning, deduction, decision making, analyzing, evaluating, problem

solving, inferencing, and producing capabilities through instruction. On condition that it is employed in educational contexts like most commonly schools, CT of learners tends to develop through the effect of life-like social practice with all its systems, possibilities, and conditions" (Benesch, 1993). However, the concept of this training has changed over time with the effect of shifts in educational paradigms. Once supporting the implicit and indirect instruction of thinking skills as a byproduct of the study in content areas, the educators and researchers have recently focused on the explicit and direct training of the 21st century skills including CT (Fisher, 2011). There is a number of research studies focusing on the integration of deliberate thinking training with the content study and a great deal of these have proven the effectiveness of the instruction of core subjects enhanced through explicit training of thinking together with certain transfer skills (Ennis, 1989; Fisher, 2011; Halpern, 1993).

## 2.7. Instructional Considerations on Critical Thinking

Accepting the importance of training for the qualified and skillful CT, researchers use various approaches, methods and techniques. There are many well-known programs which offer systematic instruction for the development of CT skills infused into or separated from the curriculum of the core school subjects. In order to choose the right program for their educational contexts and target learners, the educational authorities and teachers should define their objectives clearly (Sternberg, 1985). Guilford's 'Structure of Intellect Model (SOI)' is a popular program on thinking which aims to "(1) teach thinking skills and abilities, (2) teach creativity (divergent production), (3) teach reasoning and higher level CT skills and abilities, (4) identify SOI learning abilities and teach them to students who have not yet developed these abilities" (Meeker, 1985, p.189). It is regarded as a appropriate framework for even the youngest students because it covers the basic foundational abilities as well as advanced

symbolic abilities. Reuven Feuerstein developed the 'Instrumental Enrichment Program' focusing on the problem solving based on fourteen areas of cognitive development. It aims to improve the learners through those cognitive development areas, instruments, in order to enhance the learners' independence, self-motivation and autonomy (Link, 1985). Edward de Bono's 'Cognitive Research Trust (CoRT) Program' is among the popular programs and it aims to develop the learners' thinking skills which they can use in and out of the school context from the earlier ages to the adulthood. Emphasizing the importance of differentiating between information gathering and thinking, he also stated that the intelligent people do not necessarily think critically. Project IMPACT (Improving Minimal Proficiencies by Activating Critical Thinking) by Winocur (1985) is a prominent infusion program of CT into the math, reading and language arts. It offers a comprehensive framework on CT skills, teacher behaviors and lesson plans integrating the subject matter to the basic thinking skills.

Avoiding from the isolation of skills and abilities from the affective traits, Paul et al. (1989) offered a framework with all their theoretical explanations and applications for the instruction of CT in educational contexts. They have provided comprehensive lesson plans with objectives for the grade level and sample activities incorporating their CT strategies (see Table 6). They pay equal attention to the affective dimension as with the cognitive ones and they suggest that affective strategies are integrated to each other as in their harmony with cognitive strategies. Taking the motivation of individuals as important as their capabilities, they support the idea that individuals should be motivated enough to think critically. The researchers make a differentiation between the macro abilities and micro skills within the cognitive strategies. They believe that one needs to have the basics in order to be competent in the big picture. The individuals must be aware of the assumptions, implications, inferences

and conclusions, reasons and evidences, contradictions and vagueness in order to move to the next step and integrate these fundamentals in their thinking. We must employ a group of basic CT skills to reach at macro ability – CT (Paul et al., 1989). For a better perception on the interdependence of skills and abilities, they give the example of reading –a macro ability in which "a variety of CT micro skills" have to be used "to read, or better, in order to read clearly, precisely, and accurately" (Paul et al., 1989, p.55).

There are many other programs for the instruction of CT: "Philosophy for Children", "The California Writing Project", "Future Problem Solving", "HOTS (Higher Order Thinking Skills", and etc.  Regardless of slight differences, the programs have focused on common or similar issues, descriptions and application ways. Educators need to decide on their CT program regarding their educational objectives, contextual considerations, learner characteristics and individual differences. Explicit-implicit and infusion-general differentiation, domain specificity, technology enriched or collaborative CT training are among the most controversial issues differentiating according to the variables of the educational settings.

**2.7.1. Explicit and implicit training of critical thinking skills.** Rather than a vague emphasis on CT implicitly, an explicit focus on it should be an indispensable component of the curriculum (Van Gelder, 2005). Researchers generally agree on the effectiveness of explicit CT instruction in educational contexts (e.g. Beaumont, 2010; Beyer, 1991; Chance, 1986; Fisher, 2011; Glaser, 1984; Halpern, 2007; Lipman, 2003; Resnick, 1987; Sigel, 1980; Van Gelder, 2005; Walsh & Paul, 1986). According to the meta-analysis done by Abrami et al. (2008), taking the CT abilities as separate components to improve and making them an explicit part of classroom practice is the most productive way in CT training. They have

found out that an implicit training without a direct emphasis on CT is not effective for the improvement of skills and dispositions; instead, learners need explicit instruction integrated with the core-subject trainings (Abrami et al., 2008).

Grounding his framework on Nickerson (1988-89)'s model in which he describes three phases as modeling, coaching and fading, one of the defenders of explicit instruction, Beyer (2008) has introduced a guideline for the explicit instruction of CT skills. He covers the (1) introduction, (2) guided practice, and (3) transfer steps. Introducing explicitly a new thinking skill with various techniques such as modeling, metacognitive reflection and thinking aloud is the first step and it is essential to combine various methods and techniques for a more effective introduction process (Beyer, 2008). Once introduced properly, the thinking skill should be experienced by the learners in a bunch of practice situations. While doing this, repeated practice with "considerable instructional coaching, support, and feedback" are essential (Beyer, 2008, p.227). Provided with the necessary techniques such as cueing and scaffolding skillfully by the teachers, learners are able to gain proficiency, expertise and autonomy in managing the skill. For the last stage, Beyer (2008) introduces transfer through which the learners can adapt the new adopted thinking skill into new contexts. Using transfer techniques appropriately, the learners can be more proficient in using their thinking skills within various contexts across different domains.

**2.7.2. Infusion or general approaches.** One of the leading researchers in the field, Ennis (1989) introduced four types of instructional approach for the training of CT: (1) general, (2) infusion, (3) immersion, (4) mixed. In general approach, the aim is the separate training of CT skills and dispositions without the emphasis of subject matter content. Infusion approach focuses on the content together with the explicit instruction of CT while the

immersion approach gives importance to the topic without the explicit objectives for CT. In the infusion approach, the CT training is explicit and it is integrated with the subject matter instruction. However, in immersion approach environments, the idea is that the CT tends to develop naturally as a consequence of a qualified subject matter instruction (Ventura et al., 2017). The mixed approach is the combination of the other instructional interventions. A CT training based on a mixed intervention covers the content based instruction integrated with explicit training on the general principles and requirements of CT.

Table 10

*Instructional Interventions Introduced by Ennis (1989)*

| | |
|---|---|
| **General Approach** | *A separate instruction on CT skills and dispositions |
| | *Instruction is separated from subject matter content |
| **Infusion Approach** | *Explicit instruction on CT skills and dispositions |
| | *Instruction is integrated into subject matter explicitly by focusing on the perfect learning of CT and subject matter content equally |
| **Immersion Approach** | *Implicit instruction on CT skills and dispositions |
| | *Instruction is integrated into subject matter implicitly by giving place to the natural acquisition of CT skills for the learners |
| **Mixed Approach** | *It is the combination of the general approach with either infusion or immersion approach |

There is a great deal of research which has proven the effectiveness of thinking training integrated with subject matter content (Beyer, 2008; Glaser, 1984; Resnick & Klopfer, 1989; Siegel, 1985; Sternberg & Davidson, 1989; Whimbey, 1980). CT instruction

can be a part of programs with a rich compile of disciplines or contents from everyday life instead of being a separate discipline containing a body of knowledge (Facione, 1990). Rather than abstract concepts which are strange to the students, thinking training should cover content from familiar subject matter. If the students are provided so, they can be more motivated in that the content of the thinking training is the course objective which the students desire to achieve. Furthermore, the proficiency of the students in subject matter helps them employ thinking skills more appropriately, as in that their expertise in thinking critically boosts their success in subject matter (Beyer, 2008). With the effective management of knowledge in a domain, the learners are more motivated and willing to make inquiry and discoveries.

**2.7.3. Domain specificity in CT.** There are views supporting that the domain-independent thought processes can be useful by themselves to some extent but they are not enough to improve the skillful thinking capacity of individuals (Glaser, 1984). Without a strict elimination of one, researchers generally agree on the effectiveness of both the general thinking skills and domain-specific knowledge recently (Facione, 1990; Nickerson, 1988-89). They have a mutual relationship in that one cannot think critically without the necessary background knowledge related to a context and he/she needs to think critically in order to reach out the knowledge and use it appropriately (Nickerson, 1988-89). On condition that they are trained in thinking through general approaches, the learners should still be provided with a context to think about (Glaser, 1984; Willingham, 2007) because "thought processes are intertwined with what is being thought about" (Willingham, 2007, p.10).

The researchers who are a part of Delphi Study about CT point out that "while CT skills themselves transcend specific subjects or disciplines, exercising them successfully in

certain contexts demands domain-specific knowledge" (Facione, 1990, p.4). According to Ennis (1989), there are three principles of domain specificity:

1. *Background knowledge.* Background knowledge is essential for thinking in a given domain.

2. *Transfer.* (a) Simple transfer of CT dispositions and abilities from one domain to another domain is unlikely. (b) However, transfer becomes likely if, but only if, (1) there is sufficient practice in a variety of domains and (2) there is instruction that focuses on transfer.

3. *General instruction.* It is unlikely that any general CT instruction will be effective (p.5).

Walsh and Paul (1986) have made a comprehensive literature review on CT studies in the field and they suggest that most of the research done in the field advocate for an explicit emphasis on CT skills in subject areas. However, students' success in thinking critically in an area does not mean that they will be successful in another one or they can fail to transfer their thinking skills into new situations spontaneously (Nickerson, 1988-89). Thus, some researchers support that basic transfer skills should be covered in CT instruction in order to make students proficient enough for using their thinking skillfully in all areas (Fisher, 2011; Halpern, 1998; Van Gelder, 2005). Thought processes should be presented in a way in which they encourage the transfer of skills across different contexts and domains in order to make thinking more productive for the development of individuals. According to Fisher (2011), by training students *explicitly and directly* on *transferable* skills such as "identifying reasons and conclusions, understanding reasoning, clarifying, interpreting expressions and ideas" etc. CT skills can be transferred across the domains and contents so that the restriction of domain

specificity on CT can be eliminated (p.1). Furthermore, supported with metacognitive strategies on condition that learned and applied appropriately, CT acquisition and transfer is more possible (Willingham, 2007).

**2.7.4. Metacognition in CT training.** Metacognition is another issue that takes the attention of CT researchers (i.e. Beyer, 2008; Edman, 2008; Facione, 1990; Halpern, 1999; Kuhn, 1999; Norris, 1985). It's about the individuals' knowledge about their capacities, progress, and improvement. Critical thinkers should manage their own training process and they should be aware of their own abilities and progress in that training process. According to Norris (1985), together with the cognitive skills, a good critical thinker has "such metacognitive skills as planning, monitoring, and revising the progress of the cognitive skills" (p.43). Therefore CT training should cover the instruction of metacognitive skills, too.

Coming forward as one of the basics of education programs, metacognitive awareness of the learners is essential in that it provides learners to take control their own process and progress on their own employment of cognitive skills and strategies which they can make use of while dealing with the new knowledge (Edman, 2008). Learners who are competent enough to gain metacognitive awareness in their learning journey, can easily and skillfully manage the new knowledge in that they learn what to do and how to do with it and adapt into the new authentic situations and contexts. Furthermore, training students in thinking critically requires educators to create real contexts which involve complex situations for the practice of desired objectives and to give constructive feedback regularly for the students on their progress (Facione, 1990).

Halpern (1999) has offered a four-part model for the training of individuals in CT. It includes the instruction of skills and dispositions in the first place. Students can use their CT

skills with a willing effort and a positive attitude if they are motivated enough and trained appropriately to do so. They also need structure training in order to adapt their new skills into novel situations. Students are guided in the "the structural aspects of a problem" in order to analyze and recognize the clues which they can use in given or experienced situations requiring the use of those structures (Halpern, 1999). For the last component of instruction Halpern (1999) introduces "metacognitive monitoring" which is the individuals' appropriate management of the new knowledge with a self-awareness and self-regulation on their learning and thinking (p.73).

Beyer (2008) also emphasizes the importance of metacognitive reflection in the introduction phase of his explicit thinking instruction framework. He asserts that by employing metacognitive reflection while introducing a new thinking skill, the learners can improve their self-awareness in using their cognitive processes which they employ during the course (Beyer, 2008). Gaining self-awareness, they can explore their weaknesses and strengths appropriately in thinking critically by themselves.

**2.7.5. Technology enriched CT training.** In current highly technological era, the integration of technology in education cannot be denied. Educational environments should keep up with the latest improvements and the educators should be aware of these in order to guide students in the perfect way. Hopson, Simms and Knezek (2002) administered a study on the effectiveness of technology-enriched environments to the improvement of higher order thinking skills of the learners. They have found out that using technology as "a learning tool", students can benefit from their own metacognitive monitoring to lead their learning, keep their motivation alive and be skeptic about the firm explanations of the problems (Hopson, Simms & Knezek, 2002).

Traditional classroom contexts are designed in a way that they can meet the needs of large amount of learners simultaneously in a limited time. Such settings tend to ignore the time spent to the face to face interaction of learners with each other to the solution of problems by using their critical analysis skills. Time and large class size constraints of traditional classrooms lead educators to the classic teaching strategies through which the learners are provided with structured learning materials. In order to boost the CT, inquiry and analysis in learners, teachers should avoid from the didactic nature of traditional learning environments and in order to avoid the limitations of time and class size constraints, they should support process with online instructional strategies (Mandernach, 2006).

One of the requirements of CT training is to ensure the permanent and full time engagement of learners with authentic materials which can lead them to think critically and in order to make them active critical thinkers both inside and outside of the classroom context, teachers introduce them online tools.

Researchers who have an inclination to integrate technology with CT instruction mostly use techniques and methods such as digital storytelling (i.e. Yang & Wu, 2012) and online discussions (i.e. Arend, 2009; Cheong & Cheung, 2008; MacKnight, 2000; Swart, 2017). Online discussions are regarded as valuable ways for the improvement of CT in that they equip the learners with the necessary "time for reflection" and "the opportunity for discussion outside of the classroom" (Swart, 2017, p.5). Being independent from the time and space constraints, online discussions provide students with the effective context in which they can think and inquire deeply to express their opinions for the solution of problems (MacKnight, 2000). Furthermore, the assessment of thinking skills through online or computer-based measurements is becoming more popular day by day in that they provide

valuable and visible data regarding the thinking processes employed by the learners (Rosen & Salomon, 2007).

  **2.7.6. Collaboration in CT training.** Collaboration is a core 21st century skill which is closely related to CT. Individuals cooperate with their environment to the realization of a common objective. Moreover, for skillful cooperation, individuals should use their argumentation, analysis, reasoning and communication abilities. As a preparation for the complicated requirements of life or as the complex life's itself, schools should support students with authentic learning conditions in which they can experience life skills such as problem solving, CT, creative thinking, communication and collaboration. Students practice real or real-like problem situations that are supposed to be dealt with in groups through cooperation.

  Defined as "a situation in which two or more people learn or attempt to learn something together" (Dillenbourg, 1999, p. 1), collaborative learning is a widely used method in modern classrooms and there are sound empirical studies which measure the effectiveness of collaborative activities on CT or vice versa (e.g. Colbeck, Cabrera & Terenzini, 2001; Loes & Pascarella, 2017; Uğurlu, 2010; Quitadamo, Brahler, & Crouch, 2009). The learners who collaborate for reaching a mutual aim tend to improve in thinking critically while analyzing the information together with their friends, deciphering the meaning in others' ideas and expressing their own perspectives by giving reasons to convince the rest of the group for the meeting up at a shared point (Davis, 1991).

**2.8. Classroom Environment for the Empowerment of Critical Thinking**

  Taking teachers at the front line in the infusion and management of CT in educational contexts, Costa (1991) identified teacher behaviors into four broad categories: "(1)

questioning, (2) structuring, (3) responding and (4) modeling" (p.125). Teacher questions are the early steps of learning in a classroom environment which boost the students' recognition, comprehension and responses. Using appropriate questions for the elicitation of cognitive skills of the learners, teachers can motivate the employment of higher level thinking in the learning environment. Though the final aim is to reach the perfect self-regulative critical thinkers, teachers must pave the way for their learners by providing appropriate activities, materials and a motivating classroom environment. "A classroom environment which promotes curiosity, objectivity, flexibility, informed skepticism, persistence and respect will produce students excited about learning, students who feel free to take risks with their thoughts, students who approach ideas imaginatively, and students who value and respect the contributions of others" (Paul, 1986, p.29). The course material should be "personally relevant" to the learners so that they can be motivated enough to think on and with the help of the materials (Lawrence, Serdikoff, Zinn, & Baker, 2008). Furthermore, the real-like or authentic materials taken from the real life help students to get in the training process easily and willingly. Responded in a positive and respectful way by the teachers, the students feel the confidence through which they can internalize and use critical thought in their learning experiences.

Trilling and Fadel (2009) advocate the idea that the teachers "must have the knowledge, skills, and support to be effective 21st century teachers" (p.136). Teachers, who want to raise 21st century individuals, should be experts in using the century skills (Trilling & Fadel, 2009). Modern teachers of the present era are critical and creative to find out unique ways and provide motivating environments, communicate with their students, students' parents, colleagues, and educational authorities effectively to collaborate with them and make

21st century learning meaningful and indispensable for the learners. Teachers also open their minds to modern concept of education in a 21st century classroom. They need to be flexible enough to get rid of the boundaries of traditional classroom learning and move beyond the standard norms of teaching. Regarding their teaching as an ongoing process which requires change and developments in time, teachers often "reflect on their own experiences" and they are able to manage this process by boosting their own personal and professional development (Lorenzo, Oxman & Weinstein, 1991, p.363). They should use the sources around them appropriately to make the sources effective supporters for the learners. Teachers who can create environments for students to express and develop their ideas give their students the freedom to determine needs, set the objectives for themselves and thus manage their own learning. The students who can manage their learning can already think critically.

Recognizing the significance of the learners' certain dispositions together with their skills, researchers support the idea that **"**critical thinkers must be both *willing* and *able* to think critically in the course of making decisions" (Facione, 2015, p.3). The learners are supposed to be motivated to use their thinking skills and this motivation requires support from their environments. Chamot (1995) stresses to the importance of respect to students' thinking process from a motivation aspect and states that "... when teachers value thinking in the classroom, they are also valuing their students' identities..." (p.4). Motivation is an important fertilizer for CT of the learners. Therefore, educational environments and materials should be designed in a way that they increase the likelihood of learners to be the active participants of their thinking and creating process. The students who can think critically can communicate with their peers in collaborative activities as well. They can agree on their roles in their groups and they respect each other's ideas and work, they know how to listen their friends

respectfully and actively in order to create meaningful answers, they ask good questions which cultivate the negotiation and resolve the inconsistencies, and they should be tolerant and flexible in accepting the different ideas within their groups and out of the group (Alber, 2012). According to Delphi experts, "a good critical thinker, the paradigm case, is habitually disposed to engage in, and to encourage others to engage in, critical judgment" (Facione, 1990, p.12).

## 2.9. Assessment of Critical Thinking

Considering the general agreement on the teachability of CT through a specific instruction, assessment is an inevitable and essential component of this instruction process. As the perceptions and definitions of it are various and differ according to the conceptualization of researchers, the measurement ways "tends to capture multiple themes" (Liu, Frankel & Roohr, 2014, p.4). The assessment way should be chosen according to the objectives, sample size, testing time, and financial considerations (National Postsecondary Education Cooperative [NPEC], 2000). While CT can be measured through highly reliable standardized tests, it can be also evaluated through formative classroom assessments. A performance assessment can be used or the researcher prefers to use multiple choice tests. As in the instruction of CT, these different test formats can focus on the general knowledge on general thinking skills or the assessment can be domain-specific. The type and way of assessment depends on the objectives of the CT instruction and the perceptions of the teachers and researchers. In the "NPEC Sourcebook on Assessment" of CT, Erwin (2000) has identified conceptual considerations that should be evaluated while choosing a test for the assessment of CT skills. One has to be sure about the *relevance, utility, applicability, interpretability,*

*credibility, and cultural fairness* of the measure in order to use it in her own case (NPEC, 2000).

Differentiating between performance assessment and multiple-choice formats, Benjamin et al. (2016) underline that the cognitive processes employed while answering these two formats cannot be expected to be the same. In Educational Testing Service's (ETS) Research Report, Liu et al. (2014) emphasize the discrimination of these two types of assessments according to their authenticity and psychometric qualities. As the indirect analysis of CT skills, multiple choice tests are regarded as having high reliability and predictive validity (NPEC, 2000); but they lack the authentic value the students can face in real life scenario (Liu et al, 2014). According to some researchers, choosing the correct option among a list of possible options cannot activate the cognition of participants as in explaining the causes and consequences, expressing their opinions and creating a real bit of authentic data (Benjamin et al., 2016). Another restriction with multiple choice tests is their lack of comprehensiveness. Even if they can explain some basic parts of CT, many of the tests, especially the multiple-choice ones are not comprehensive enough to cover all aspects of CT (Ennis, 1993; Norris, 1989). Regardless of its authenticity and comprehensiveness problem, multiple-choice test format is still highly appreciated and preferred type of measurement of CT in that it is easy to apply and analyze, highly objective and it can yield comparable results.

Though it fails to meet the psychometric requirements of testing, authentic performance assessment can be a better representation of the complex real world situations in which students need to test their CT spontaneously. CT is a fundamental life skill that is charged for coping with the complex situations of real life. In order to raise critical thinkers in educational contexts, students should be provided with real-like problem scenarios during

both the instruction and assessment processes (Halpern, 1993). Performance assessments (Bonk & Smith, 1998; Ennis, 1993; Halpern, 1993, 1998) are productive measurements of CT skills and dispositions in that they give the researchers and educators valuable data regarding the authentic performance of learners in thinking critically. Thinking critically takes time to learn and it is not reasonable to assess in a limited time; performance assessment give the necessary time to assess the CT skills elaborately (Ennis, 1993). One of the most famous performance assessments, the Collegiate Learning Assessment (CLA) is an open-ended measurement that equips students with these real-life problem scenarios to deal with real-like problem solving (Benjamin et al., 2016). ETS tasks are other ways of common performance assessments in the field. They cover a group of nine performance tasks in which the students are asked to give short answers, list the information and write essays addressing analysis, inquiry, and communication skills of CT (Erwin & Sebrell, 2003).

One of the most controversial issues in the assessment of CT skills is whether to employ an institutional or standardized type of test. Standardized tests are better ways in that they can offer more reliable, valid, generalizable and comparable results across the different contexts and different institutions. However, they may sometimes lack the essential harmony with the course objectives. Institutional tests designed according to the specific needs and requirements of the employed CT instruction are more successful in that they can assess the realization of the objectives in the course. But it is important to note that institutional tests have their own limitations because they have narrow contexts which may not be the same with the others where the test is desired to be administered. In that sense, standardized tests are more solid and generalizable forms of assessment. California Critical Thinking Disposition Inventory (CCTDI), California CT Skills Test (CCTST), Watson–Glaser Critical

Thinking Appraisal tool (WGCTA), California Measure of Mental Motivation (CM3), Cornell

Critical Thinking Test (CCTT), Collegiate Assessment of Academic Proficiency (CAAP),

Ennis–Weir Critical Thinking Essay Test, Halpern Critical Thinking Assessment (HCTA),

Collegiate Learning Assessment+ (CLA+), ETS Proficiency Profile (EPP) are among the

well-known standardized test which measures the general CT ability of the individuals.

Along with many well-known standardized tests there are various ways to assess the

students' CT skills throughout the training process. In the form of formative assessment, these

type of ongoing assessments related to the performance are productive ways to evaluate CT.

Teachers can also employ behavior checklists (e.g. Kruger & Zechmeister, 2001) in order to

control whether the students show the required behaviors or not, or they can use observation

forms and research journals to reflect on both their own and learners' performance during the

instruction. This can give valuable data which they can use while assessing the fertility of

instruction in order to find out the problematic sides and to reshape some of the fallacious

parts. One of the characteristics of critical thinker is that they can reflect on their own learning

story, they can evaluate their performance and correct the needed parts. Besides evaluating

their own progress, students can assess their friends' performance by using peer or group

evaluation forms. Student self reports in the form of self-reflection forms (e.g. Apple,

Serdikoff, Reis-Bergan & Barron, 2008), student journals and portfolios are the ways of

ongoing assessment for students to analyze their own experiences and to understand their

perceptions about their capabilities to think critically (Halpern, 1993). Portfolios are efficient

ways to compile the work of students produced over time during the instruction process and

they give fruitful insights to the researcher, educator and learners for the effectiveness of the

process and the range of the progress (Costa, 1991).

Reviewing all the issues on assessment, taking into consideration "the multifaceted nature of thinking", the researchers generally agree that it may not be adequate and reasonable to measure the CT of the individuals through a single instrument (Costa, 1991; Nickerson, 1988-89). In order to avoid from the restrictions and to benefit from the strong aspects of various tests, a triangulation should be employed (Lai & Viering, 2012). Furthermore, the aim is not to label or rank students according to their success or failure in CT assessment. The researchers or educators should aim to collect productive data on the CT capacities of learners in order to design and redesign the instructional program. It is essential to note that the students should be motivated to welcome their mistakes and learn from their failure by analyzing it using their CT. The nature of CT instruction should be flexible enough to tolerate the mistakes and failure in order to yield valuable insights about the participants of the program.

## 2.10. Critical Thinking and Language Learning

21st century requires continuous communication and collaboration among all the members of global society in order to create innovations and solutions to the new issues of the world. Speaking the same language makes this possible and the individuals in modern societies are expected to know more than one language for getting in contact with each other. English is the most preferred common language among the participants of international collaboration. Accepted as a "global language" today, English is beyond the ownership of the people who know it as a mother tongue; it is a necessary and international communication tool among individuals to meet at the global objectives (Nunan, 2003). With the acceptance of its global nature, nearly all the information that is worth sharing is in English. In order to reach out the reliable information from its main source, individuals need to be English

literates. Thus, English learning as a foreign language is a part of the national curricula in nearly all countries and the innovative educational environments try to improve the quality of this instruction through various ways. One of the most effective ways for the improvement of qualified language learning is to integrate it with 21$^{st}$ century capabilities that the learners need in real life.

The learners need to have certain skills that help them to communicate and collaborate with their environments in the target language. Considering the significance of these skills in language learning, there has been more research integrating the 21$^{st}$ century skills with the language learning curriculum recently (e.g. Benesch, 1993; Black, 2009; Carter, 2004; Davidson, 1998; Eaton, 2010; Greenhill, 2010; Gürsoy & Bağ, 2018; Nunan, 1992; O'Neill & Gish, 2008; Thompson, 2002; Yunus, 2018). One of the basics of the century, CT is a key for the meaningful interaction and collaboration. Active collaboration which is a necessity in today's world requires skillful thinkers, who can communicate in common language to critically analyze the messages, make reasoning and inferences and create the meaning to express their own opinions. Regarding the complex cognitive demand of both, many researchers suggest that CT is a must for effective communication in a foreign language and CT training should be an integral part of ELT curriculum (e.g. Beaumont, 2010; Benesch, 1993; Davidson & Dunham, 1997; Dong, 2006; Lin, 2018; Pally, 1997; Shirkhani & Fahim, 2011; Tang, 2016; Yang & Gamble, 2013).

**2.10.1. Cultural considerations on the integration of CT and ELT.** Although the researchers in the field generally agree that the CT can be improved through a special training, there isn't a common consensus on the teachability of it in EFL classrooms among

nonnative speakers. There are various cultural considerations associated with the CT

instruction in Eastern countries where the English is not spoken as a native language.

Most of the controversies are based on the social-cognitive distinction regarding the

acquisition of CT skills. Rather than as a "teachable set of behaviors" and cognitive skills,

Atkinson (1997) identifies CT as a cultural-based perception which is mostly related to the

"common sense" of the society (p.72). As a "social practice", CT in second language is hard –

if not impossible- for the learners of it in that the essential socialization process have been

through during the childhood (Atkinson, 1997). According to Ramanathan and Kaplan (1996),

not being exposed to this socialization process enough, L2 learners have difficulties in

thinking critically.

Furthermore, some researchers believe that the effects of certain cultural background

may be hindering in the case of CT. Fox (1994) asserts that it is a sophisticated and

intellectual Western way of thinking which is welcomed appropriately by only a small group

of people. According to Atkinson (1997), the conservative nature of the Eastern societies

block CT. He supports the idea that, as a part of social context, it is trapped within the cultural

norms of the society and some cultures tend to demotivate CT (Atkinson, 1997). Considering

the conservative nature of Turkey, CT is a phenomenon that needs to be explained enough to

prevent misconceptions. Taking the "criticism" as a judgmental and negative behavior, people

tend to avoid from CT. Regarded as the thought which tries to criticize everything and

everyone, the word 'critical' has "a negative connotation in Turkish" (Petek & Bedir, 2015).

Though it is generally agreed by many of the researchers that CT has "social" nature

together with cognitive skills like analyzing, inferring, synthesizing, evaluating, reasoning and

etc. (e.g. Atkinson, 1997; Benesch, 1993; Gieve, 1998); there are strong opponents against the

views on the cultural drawbacks of Eastern learners (Davidson, 1998; Floyd, 2011; Gieve, 1998; Stapleton, 2002). The researchers (Littlewood, 2000; Stapleton, 2002) assert that the perception of passive and obedient student figure who cannot think critically is not the case according to the learners in the studies. Floyd (2011) advocates that the deficiencies of L2 learners in employing it most commonly caused by their lack of fluency in L2, working memory problems and various individual differences which are natural to the all second language learners no matter what their nationalities are. Accepting the conservative nature of Eastern learners, Stapleton (2002) believes that new generation of Asian learners who have an "individual voice" and reject the conventional norms participate in the educational process and these learners are eager to think critically. Even if the learners are not eager to participate to get in this thinking process willingly and they value "silence, imitation, submission, and conformity", this does not mean that the teachers shouldn't teach how to think in those cultures (Davidson, 1998, p.121). On the contrary, Davidson (1998) suggests that the job of a language teacher is to prepare the learners for the real situations in which they communicate and get in contact with the native speakers of that language "who value explicit comment, intelligent criticism, and intellectual assertion" (p.121). In order to avoid from the hindering effect of cultural norms on CT, explicit instruction of CT skills can be a useful and productive way to adopt (Davidson, 1998; Zhao, Pandian & Singh, 2016).

**2.10.2. CT development in language classrooms.** Although CT is regarded as a natural process which can be developed through the maturation process of learners by some of the researchers, it is not reasonable to expect students to become skillful critical thinkers in a second language without guide them to do so. The students should be provided with a specific language training integrated with CT activities from the beginning of a language acquisition

process. Qualified tasks which force learners to use their thinking skills effectively while learning a language are mutually productive in the development of both language proficiency and CT. According to the generally accepted idea, "by tailoring instruction to students' needs and meaningfully linking cognitive and linguistic elements in the learning process, teachers can help English language learners develop the higher-order thinking skills they need" (Dong, 2006, p.23).

The first step of a CT instruction is getting rid of "the language barriers" that the learners bring to the classroom along with them (Dong, 2006). Having broken up these barriers, teachers can create environments in which the students feel free to express their thoughts. According to Dong (2006) "by encouraging English language learners to compare, question, discuss, validate, and reflect on their own and others' ideas, teachers promote higher-order thinking skills and, at the same time, create active readers and writers" (p.26). In a learning environment in which the students' opinions and integrities are valued, the innovative and critical thoughts are more prone to arise (Chamot, 1995). If the students think that their thought matters and they are a part of the group to solve the problem, they feel more motivated to think critically on the issues provided by the teacher.

The learning environment and activities should be designed in such a way that the learners can participate in dialogical CT contexts in which they can practice complex real-like communication situations. Individuals need a communication way and their thinking skills in order to collaborate for the solution of real-life problems. Learning process is easily shaped by the questions and problems in a 21st century classroom (Trilling & Fadel, 2009). Keeping this perspective into basis, the learning environments should be authentic enough for students to ask questions in order to create solutions to the problems (Hughes, 2014). One of the basic

ways to make learning environment closer to the reality is to employ collaborative techniques. Considering the socialization angle of learning and especially language learning, collaborative activities are productive to integrate the classroom context with real life. "English language instruction is an appropriate forum for CT (CT) activities, as the collaborative/interactive features of CT-based activities can augment language learning and challenge learners to expand their thinking" (Yang & Gamble, 2013, p.399). Learners can practice their thinking and language skills in a real-like context in a collaborative task and they can create solutions and explanations for the authentic issues within their groups on condition that they are guided properly and skillfully. "Why" and "how" questions which support more than one correct answer are the core triggers for the emergence of creative ideas and reasonable solutions. Considering the multifaceted nature of life in which there is not just one correct answer, learners should be guided to welcome the differences and tolerate the mistakes.

Focusing on the right answers and the correctness of questions, students cannot think critically to the creation of innovative arguments; instead, they tend to memorize the answers to avoid from the fallacies (Walsh & Paul, 1986). In order to prevent the drawbacks caused by this kind of limited thinking way and memorization habit, the assessment should be close to the instruction during the course. Rather than being an end, assessment should be a process that is administered carefully and appropriately. Teachers can use self, peer and group assessment forms, student journals, behavior checklists, observation forms, portfolios throughout the language and CT instruction instead of a sole written exam. The classic exams which are administered in a given time should also reflect the nature of instruction. For the assessment, the students should be given problem solving activities through which they can

show their questioning, synthesizing, analyzing, reasoning and deduction skills they practice during the CT integrated language instruction.

   *2.10.2.1. Frameworks for the development of CT in language classrooms.* CT research has been increasingly done in the field of second language teaching and the researchers come up with various frameworks and activities that can be practiced in ELT classrooms (e.g. Beaumont, 2010; Brown, 2014; Pally, 2007; Yang & Gamble, 2013). Sustained content study (Pally, 1997), one of the ways of infusion in ELT classrooms, aims to integrate CT in content area and language learning. It helps learners to improve as a whole in language proficiency, content knowledge and higher order cognitive skills (Pally, 1997). While spending time to acquire new information in a field, learners develop their language proficiency for meaningful comprehension. Moreover; analyzing, comparing, questioning, synthesizing, evaluating new information in the target language, students tend to think more skillfully and critically. Practicing the language and CT through authentic situations in order to understand the subject matter, students can be more motivated to participate in the real issues in real life.

   Similar to Pally (1997), Brown (2014) proposed a guideline through which he integrates CT skills (Facione, 1990) into a content-based input model of language instruction for academic purposes (EAP). He offered three phases: (1) meaningful input consisting of interpretation, analysis, inference and self-regulation, (2) critical processing containing interpretation, evaluation, and inference, (3) meaningful output including analysis, inference and explanation. Brown (2014) concluded at the end of his content-based study that having the essential subject knowledge students can develop their linguistic skills as well as CT in a meaningful way.

Another useful framework has been proposed by John Hughes (2014) in order to define the progressive steps that the learners need to take in their process of language learning and CT. He has described (1) understanding, (2) applying, (3) analyzing, (4) evaluating, (5) creating and he notes that although the students are expected to move in this linear way, it cannot be always the case and students need to return to the beginning at some point. However, this linearity still helps to form a basis and get the necessary scaffolding for getting used to think critically. Emphasizing the importance of authenticity and authentic materials in instruction, Hughes (2014) focuses on a natural process by softening the strict steps.

Beaumont (2010) has studied on Numrich's sequence of CT tasks and he has explained them elaborately for the employment of the framework in ELT classrooms more commonly. He notes that there are various CT skills offered by various researchers. However, the real issue is to adapt and integrate these skills through meaningful and practical frameworks in the classrooms. Numrich's sequence of CT tasks provides a solid framework for the text-based activities such as reading and listening during an English course. It consists of seven task types -observing, identifying assumptions, understanding and organizing, interpreting, inquiring further, analyzing and evaluating, making decisions (Beaumont, 2010). Furthermore, Beaumont (2010) stresses that the framework is not a strict one that follows an unchangeable sequence. Teachers should adapt this guideline according to the language learning needs of their learners. Though it's called as a sequence, this framework consists of task types that have a flexible progress and can be overlapped from time to time according to the process of the course.

*2.10.2.2. Activities that help to improve CT.* Ivey and Fisher (2006) propose a series of ideas and activities on reading skill to improve CT in the classroom. They suggest that

"conceptually rich, accessible" authentic texts that are related to the controversial issues in real life are effective materials to promote CT skills (Ivey and Fisher, 2006, p.17-18). These texts motivate students to think about the current issues in real life and they develop the reasoning and CT capabilities of learners. While reading on the current issues, it is important to analyze the reliability of information in the texts. Coming forward as a necessary skill of the 21st century individuals, evaluating the reliability of sources should be covered by CT embedded reading activities. Authentic texts taken from real sources are great materials both for the development of CT and language skills of the learners in that they trigger students' background content knowledge and curiosity. They should be also interesting enough to take the students' attention and keep their attention awake. The sense of curiosity and humor is necessary to trigger CT (Ivey & Fisher, 2006). Visual aids such as pictures, graphics, drawings, etc. help students to feel curious and interested in the texts. Evaluating the reliability of sources, guessing the topic of text, writing a headline for the text or the paragraphs in the text, put the sentences or paragraphs into correct order, eliciting the main ideas in a passage, recognizing the facts and opinions, making inferences based on the text, answering comprehension questions, guessing the meaning of the words from the text, guessing or drawing pictures related to the text are some of the activities that can be employed during CT embedded reading instruction.

Writing activities are important in that they promote students' thinking and making judgments on an issue. Considering and evaluating an issue from their own and different perspectives, learners are tend to promote basic CT skills. If the issues are chosen from controversial hot topics related to modern life or intriguing things, students can be more eager to participate in the activity and write their ideas (Yang & Gamble, 2013). Concept maps are

effective ways to arrange information by using graphical illustrations (Ventura et al., 2017).

Learners can categorize and redesign information and make them their own by analyzing it

through the reasonable and visual bounds. Concept mapping is associated with the

management of information processing which is an essential component of thinking critically

and using concept maps is highly common in CT training in that they are thought to increase

the clarity of information (Yue, Zhang, Zhang & Jin, 2017). The students who spend an active

time on a text and analyze and manage the information by themselves with their own efforts

are more likely to use their CT effectively. Therefore; writing summary for the written, audio

or visual texts is an effective way to activate the students' thinking because these texts can

create a place to express their ideas and they provide necessary background knowledge that

they can use in their work (Lawrence et al., 2008). Writing summaries, writing a reply to an

invitation card or email, writing a new and different end to a story, writing possible reasons,

consequences or solutions to the given problems, writing comparative or argumentative

essays are some of the effective writing activities that can be used to improve CT.

      CT integrated listening tasks are essential because they provide different perspectives

to the learners through which they can analyze the meaning as in authentic communication.

The real listening passages taken from real sources tend to inform students on the way of

native speakers' thinking and communication and a continuous practice make students more

aware of the real modern world. However, not all the texts succeed to pull students into

listening. The texts with intriguing and humorous authentic content are more comprehensible

for the learners and they raise the possibility of them to think critically for reaching out the

meaning (Yang & Gamble, 2013). Furthermore, comprehensibility can be realized through the

texts with issues which the group may possibly have some background knowledge. Listening

tasks should be designed from the simple to the complex, in a way that they trigger the reasoning skills of learners. Listening for the main idea, evaluating the reliability of sources, guessing on the environment (weather, place, time, etc.) based on the text, guessing on the characters (gender, age, physical appearance, height, weight, personality etc.) based on the text, inferring the meaning of the words from the text, answering the comprehension questions are productive activities which can be used to improve CT skills of language learners.

Students use the language as a means for communication to solve the problems and share their opinions. Thus, speaking activities are one of the core ways to improve language and CT skills of the learners. The training of learners to think dialogically is essential especially in language classrooms in which the students should avoid from monological thinking that leads them to participate in a one-way reasoning and argumentation process. Paul (1986) emphasizes the importance of dialogical thinking through which the learners engage in how to create arguments by analyzing opposing views and their reasoning skills. Role plays, debates are effective ways to improve dialogical thinking and thus CT among learners. Role plays and drama are effective ways to lead students thinking critically by putting on another person's shoes and having his/her ideas. Debates are one of the most preferred ways in CT training because the participants aim to find solutions to the problems by questioning others' arguments and making their own arguments. Questioning is an essential facilitator in language classrooms for the development of both language proficiency and CT. Socratic questioning is regarded as the beginning and first way to improve CT in individuals. Teachers can use questions "to seek evidence, to ask questions, to examine their own reasoning, to explore alternatives, to evaluate consequences" (Paul, 1986, p.31).

Analyzing the meaning of questions, if the students can reply the questions with long answers by explaining their arguments and giving reasons, learners tend to gain both CT and language proficiency. Argument maps are "transparent and effective" ways to put the arguments in a map related to a web of claims and "they make the core operations of CT more straightforward, resulting in faster growth in CT skills" (Van Gelder, 2005, p.45). Thinking aloud is regarded as an important explicit instruction technique to make the thinking processes of the learners visible and to understand the thinking capacity of them as in argument maps (Beyer, 2008). Evaluating the reliability of sources, considering alternative consequences for a given situation, considering possible reasons of a complex situation, jigsaw activities, debates, role plays, drama, thinking aloud, think-pair-share activities, problem solving and decision-making tasks are effective ways to improve CT in foreign language speaking.

According to Beaumont (2010) "the development of CT skills requires consciousness raising practice in addition to the practice of the discrete skills themselves so that students may access these metacognitive strategies on their own" (p.20). Having students to keep student journals is a great way for them to attend their learning process and make them aware of their own progress. That's why it is reasonable to use journals in CT embedded classroom in that it promotes students' analyzing their own learning, self-reflection and self-regulation which are important dispositions that the critical thinkers have. Students can also fill in or write self-review forms based on their own work. Structured peer review exercises are other useful ways to make students think about the process of learning of themselves and their friends. Students first read and examine each other's work, then they are asked to fill structured peer review forms and finally they discuss on the analyses (Lawrence et al., 2008).

Table 11

*Suggested Critical Thinking Techniques*

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10+ Critical Thinking Ideas:

1. Nominal Group Process (i.e., ranking brainstormed ideas)

(e.g., Categorize and rank how to increase revenues.)

2. Plus, Minus, Interesting (PMI), Pros and Cons, Considering All Factors (CAF)

(e.g., Record the positives, negatives, and interesting aspects of flexible budgeting)

3. K-W-L (What do you know?, What want to know?, What did you learn?)

(e.g., a lesson on pension or lease liability issues)

4. Summing Up: Summaries, Reviews, Index Cards, Abstracts, Outlines, Nutshelling

(e.g., summarize the lecture or the most recent text chapter at the start of class)

5. Minute Papers, Reflection Logs, Think Sheets, Guided Questioning

(e.g., What was the muddiest point of today's lecture on FASB ————?)

6. Critiques, Rebuttals, Replies, Rejoinders

(e.g., FASB's, legal decisions, UCC, management decisions, waste treatment)

7. Case-Based Reasoning and Problem-Based Learning (including electronic scenarios)

(e.g., Case A, Case B; Case & Commentaries; Cumulative Case; Critical Instance)

8. Pruning the Tree, Twenty Questions, Working Backwards

(e.g., ''I am a particular ratio, can you guess which one I am?'')

9. Mock Trials, Structured Controversy, Debates, Examining Both Sides of Argument.

(e.g., fraud, embezzlement, OSHA problems; expensing R&D vs. capitalizing R&D in a

start-up Internet software tool company)

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10. Graphic Organizers: Flowcharts, Concept Maps, Diagrams, Decision-Making Trees

(e.g., graphing management styles, Venn diagrams, pert charts of a new product design,

flowcharting audit trails)

11. Other Techniques

Categorization/Classification Schemes/Taxonomies

Comparison and Contrast Matrices

Identifying and Ranking Main Points

Socratic Questioning, Inquiry Learning

Cost-Benefit Analysis

Determining Cause-Effect Relationships

Adopted from Bonk & Smith (1998, p.276)

## 2.11. Review of the Research on the Teachability of Critical Thinking

**2.11.1. Studies on CT conducted abroad.** Although there are controversial

perceptions on the acceptance of CT as a skill that can be taught (e.g. Atkinson, 1997; Gieve,

1998; McPeck, 1990; Ramanathan & Kaplan, 1996; Resnick, 1987; Simpson & Courtney,

2002; Willingham, 2007), there has been a number research studies done in the field trying to

explore the applicability of CT training in educational contexts (e.g. Abrami et al., 2008;

Behar-Horenstein & Niu, 2011; Davidson & Dunham, 1997; Davidson, 1998; Floyd, 2011;

Higgins, Hall, Baumfield & Moseley, 2005; Kennedy, Fisher & Ennis, 1991; Nanni &

Wilkinson, 2014; Reed & Kromrey, 2001; Stapleton, 2002). According to the review of

Kennedy, Fisher and Ennis (1991), regardless of their ages or proficiency levels, all

individuals have something to gain from CT instruction, and that is a consistent implication

with many other studies in the field. With the acceptance of the teachability and usability of it

in educational contexts, the CT research has been moved forward with the study of interventions. There are various pedagogical interventions for the instruction of CT in educational contexts regarding the diverse perceptions of their practitioners. In the review of Kennedy et al. (1991), they concluded that instructional interventions tend to lead a significant and positive improvement in the CT skills of the learners. Abrami et al. (2008) conducted a meta-analysis of 117 studies in order to find about the effectiveness of the interventions. They reached out various results; they decided that implicit instruction is the least effective method while a mixed approach covering the training of the learners explicitly on CT has larger effects to the improvement of its skills. According to another review of 42 studies done by Behar-Horenstein and Niu (2011) on CT interventions –general, infusion, immersion, mixed proposed by Ennis (1989), the immersion approach has been proved to be least effective. Reed and Kromrey (2001) adopted Paul's instructional approach to infuse CT training into a college level history class. Their study supports the main implications of many CT studies; "explicit, structured and intense training for CT" is effective to make students real critical thinkers (p.213).

Thinking Skills Review Group's meta-analysis (Higgins et al., 2005) showed that the CT instruction tends to affect the general proficiency of the learners especially their metacognitive abilities tend to improve. Regarding the self-directed learning and CT as the two basic themes in adult education, Garrison (1992) emphasizes the importance of integrity of models which give attention to the "individual responsibility" and "shared control" (p.147). He asserts that there is a need for an integrated framework for self-directed CT. Riesenmy, Mitchell, Hudgins and Ebel (1991) have conducted an experimental research about the effect of small group sessions on the "self-directed CT" to the development of problem-solving

skills of secondary school learners. They have found out that the learners who were trained on thinking critically showed higher level of problem-solving abilities. Besley and Spero (2014) also did a research on college students and revealed that the explicit course instruction tend to improve the learners' CT skills and metacognition levels.

CT instruction is commonly applied in collage level students in many different studies associating CT with various fields. However, regarding its cognitive nature that is existent in all individuals no matter what the age is, children and adolescents can have CT skills to some extent. In their description of CT, Delphi panelists (1990) suggest that "from early childhood, people should be taught, for example, to reason, to seek relevant facts, to consider options, and to understand the views of others" (Facione, 1990, p. 27). Kennedy et al. (2011) concluded that even if it is a skill that can be improved in time with experience and even if the older learners can be more proficient in thinking skillfully, younger learners can also develop their CT in a way through the instruction. Bailin, Case, Coombs and Daniels (1999) have emphasized the importance of dispositional gains along with the CT skills among students in earlier ages to internalize the CT skills and make them as a sustainable habit in students' thinking patterns.

**2.11.2. Studies on CT conducted in Turkey.** There is a considerable amount of studies in Turkey focusing on the identification of the existence of CT skills or dispositions in learners from different proficiency and age levels. Most of these were employed in a descriptive manner in order to answer the questions like whether the students can think critically or not and if there is a correlation between CT skills or dispositions and various phenomena (e.g. Akar, 2007; Akbıyık & Seferoğlu, 2006; Akdere, 2012; Arpat, 2020; Bayındır, 2015; Buran, 2016; Demir, 2006; Demiral, 2014; Dilekli, 2017; Kaloç, 2005;

Karabacak, 2011; Koçoğlu & Kanadlı, 2019; Köksal & Çöğmen, 2018; Kürüm, 2002;

Özdemir, 2005; Ulaş, Koçak & Karabacak, 2012; Yıldırım, 2019; Yıldız, 2011). According to

the general findings of the studies, CT is not an individual ability or characteristic; it is a

context-based phenomenon which is closely related to the environment and the target

population through which the critical thought is experienced (Buran, 2016). Furthermore,

according to the research trying to reveal the CT disposition level of the learners, the learners

have moderate or high levels of CT dispositions which are needed to be supported along with

the skills in all disciplines in order to enhance the appropriate CT behaviors (e.g. Akbıyık &

Seferoğlu, 2006; Bayındır, 2015; Buran, 2016; Koçoğlu & Kanadlı, 2019).

Along with many studies conducted in the college level which reported a medium or

high level of CT skills for the students (e.g. Akdere, 2012; Demiral, 2014; Kürüm, 2002; ),

there have been studies trying to reveal the CT level of the primary, secondary or high-school

students regarding various variables, to measure the correlation between CT skills and

different phenomena (e.g. Akar, 2007; Demir, 2006; Dilekli, 2017; Kalkan, 2008; Köksal &

Çöğmen, 2018; Ulaş, Koçak & Karabacak, 2012; Yıldırım, 2019; Yıldız, 2011). Most of the

studies focusing on the CT levels of primary, secondary or high school students conclude that

the students have a medium or generally high level of CT skills.

There are several studies employed for the development or adaptation of a test which

measures the CT skills or dispositions of the learners (e.g. Demir, 2006; Kılıç & Şen, 2014;

Semerci, 2000). Demir (2006) developed "Critical Thinking Skills Scales Set" in order to

measure the CT abilities of the learners. He adopted the six skills identified by Delphi

researchers (1990): (1) interpretation, (2) analysis, (3) evaluation, (4) inference, (5)

explanation and (6) self-regulation. There are both descriptive studies which analyze the CT

level of the students across various variables like academic success, gender, school type, and class size (Kalkan, 2008; Karabacak, 2011; Yıldız, 2011) and correlational studies looking for the relationship between CT and other phenomena (Dilekli, 2017; Köksal & Çöğmen, 2018; Ulaş, Koçak & Karabacak, 2012). Köksal and Çöğmen (2018) applied Demir (2006)'s "CT Skills Scales" to measure the CT capacities of secondary school students in a single city of Turkey. They also looked for the correlation between the communication abilities of students with their CT level. They have found out that there is a positive and significant relationship between them; furthermore, analyzing the CT skills separately, the researchers have reached the highest correlation between the communication and self-regulation capacity of learners. There are also experimental and quasi-experimental type of studies which use Demir's (2006) scale as the pre and posttest (Kaçar, 2020; Korkmaz, 2018). Kaçar (2020) administered a mixed method research in order to understand the effectiveness of 7E-supported Inquiry-Based teaching on the students' CT and achievement levels in Social course and to reveal the participant students' perceptions on the efficacy of the instruction. At the end of the quantitative and qualitative data analyses, he found out that the 5th grade students could move forward in thinking critically. Korkmaz (2018) conducted a quasi-experimental study through which she tried to measure the effectiveness of specific CT training for the primary school teachers and redesigned coursed enhanced through CT for the 4th grade students. With the analysis of "Teacher Behavior Inventory Supporting CT", "CT Scales" (Demir, 2006), interviews and observation forms, the researcher concluded that both teacher and student trainings have improved the CT level of the teachers and students and this improvement was proven to be permanent. The present study also used Demir's (2006) scale in order to measure

the CT level of the participants in the beginning and end of a CT embedded English instruction.

Experimental type of studies focusing on the CT instruction and curriculum development tend to increase recently in Turkey (e.g. Akınoğlu, 2001; Han, 2020; Hocaoğlu, 2020; Kaçar, 2020; Korkmaz, 2018; Kökdemir, 2003; Öz, 2020; Salur, 2019; Semerci, 2005; Şahinel, 2001). Many of these studies were administered at the college level with the prospective teachers of various disciplines (e.g. Demiral, 2014; Polat, 2019; Salur, 2019) or with the students from other fields (e.g. Kökdemir, 2003; Semerci, 2005). Kökdemir (2003) studied on the improvement of CT dispositions of the college level students in the Faculty of Economic and Administrative Sciences Department along with the decision making and problem solving skills. He found out that the training had positive impacts on the treatment group learners' dispositions towards CT. Salur (2019) investigated whether an inquiry-based science instruction would improve the CT level of prospective science teachers or not and concluded that the instruction has been effective. The studies generally pointed out the lack of CT among college students and they concluded that this could be caused from the lack of experience of the students in their previous learning practices.

There are also studies applied with lower age groups in order to enhance high school, secondary or primary curriculum developments and course redesigns (e.g. Akınoğlu, 2001; Arpat, 2020; Dağlı Türkmen, 2018; Han, 2020; Hocaoğlu, 2020; Kaçar, 2020; Korkmaz, 2018; Şahinel, 2001; Öz, 2020; Schreglmann, 2016; Uçar, 2019). Akınoğlu (2001) administered a pretest-posttest design study with fourth grade students in an elementary school. He tried to find out the effect of CT on science course success and concluded that the redesigned course was more effective than the traditional type of instruction. Şahinel (2001)

conducted an experimental study with the fifth grades in a state school of Turkey. He studied on the improvement of integrated language skills through CT in a Turkish course and he concluded that CT based approach has been effective on the learners' attitude towards Turkish course. Öz (2020) looked for the effectiveness of self-regulatory training on the CT development of the students along with achievement, awareness and motivation levels and the results revealed the positive relationship between self-regulative attitudes and CT. The common implication of these studies is that CT should be an integral part of the curriculum and the studies indicated that CT improvement is possible with primary, secondary or high school students.

Though the results were different and quantitative results did not show the effectiveness of CT instruction significantly all the time for some studies; most of them underlined that the training on the CT skills of learners have a positive impact on the improvement of their academic success, CT level, self-awareness, motivation and other kinds of phenomena. Furthermore, in mixed type of studies, qualitative results most generally supported the view that the CT can be taught in educational contexts.

**2.12. Review of the Research on the Teachability of Critical Thinking Skills in ELT Contexts**

**2.12.1. Studies on CT in ELT field conducted abroad.** One of the most controversial issues regarding CT and language learning is the teachability of CT in ELT classrooms. Atkinson (1997) is one of the researchers who are against the perception of CT as a "teachable set of behaviors"; he asserts that CT is a "social practice" that can be only acquired in a natural socialization process by the native speakers of the language. However, there are strong opponents of this idea and they employed studies in order to prove that CT

can be taught in EFL classrooms to the nonnative speakers, especially in Eastern countries

(e.g. Davidson & Dunham, 1997; Davidson, 1998; Fahim & Ahmadian, 2012; Floyd, 2011;

Nanni & Wilkinson, 2014; Stapleton, 2002). Davidson and Dunham (1997) employed an

experimental study on the teachability of CT in a Japanese EFL context. They tried to

understand the effectiveness of the integration of CT skills to the lesson curriculum and they

used Ennis-Weir Critical Thinking Essay Test to assess the progress of the participants. They

gave training on CT skills besides intensive academic English instruction to the treatment

group while the control group took only the content-based English instruction. The treatment

group significantly outperformed the control group which has proven the hypothesis of the

researchers on the teachability of CT in EFL classrooms. Questioning the effect of language

proficiency on CT performance of the EFL learners, Floyd (2011) administered the Watson

Glaser CT Test both in students' mother tongue and in the target language, Chinese and

English. She observed that the students had difficulties while dealing with the test in L2 and

she asserted that the real challenge for Asian students relating to their CT performance may be

about their L2 proficiency, fluency, individual differences and working memory issues rather

than their cultural disadvantages.

The researchers in the field of second language teaching tend to focus on the

integration of CT to the course content. Enhanced through an instruction of CT, standard

language curriculum in an EFL context tends to motivate the learners in the improvement of

both areas. Affecting each other mutually, CT and language proficiency of learners develop

significantly in the experimental studies administered by EFL researchers (e.g. Davidson &

Dunham, 1996; Hashemi & Zahibi, 2012; Lin, 2018; Yang & Gamble, 2013). Yang and

Gamble (2013) conducted an experimental research in order to measure the effectiveness of a

CT instruction design in which the English "reading and listening" course curriculum of is enhanced with effective and practical CT. The groups were two freshman classes including non-native learners of English at a Taiwan university. They found out that the experimental group who was exposed to the CT embedded course design outperformed the control group who took the standard curriculum in both CT capacity and language proficiency at the end of the study. Based on their experience in the study, they set the basic principles of a CT embedded English course as "(1) the use of sustained content, (2) the provision of a variety of perspectives and sources (3) the use of issues-based and relevant topics" (Yang & Gamble, 2013, p.408). Hashemi and Zabihi (2012) did a research on the relationship between CT and receptive language skills and it implied that "CT can be developed as a core academic skill" and by employing the appropriate tasks it can be enhanced to achieve multiple educational outcomes (p.177). They implied that if the CT is given enough importance in EFL classes, it helps learners to gain mastery in their English proficiency (Hashemi & Zahibi, 2012).

Critical literacy has been shown up as a common concept in the studies applied in EFL contexts. A quite number of researches on CT in ELT have dealt with the relationship between CT and reading (e.g. Fahim, Barjesteh & Vaseghi, 2011; Fahim, Bagherkazemi & Alemi, 2010; Fahim & Hashtroodi, 2012; Hashemi & Ghanizadeh, 2012; Kuek, 2010) or CT and writing relationship (e.g. Davidson & Dunham, 1996; Lin, 2018; Turuk Kuek, 2010). The studies have indicated that there is a significant and positive correlation between them and the students who can think critically tend to be more proficient in comprehending the reading and writing tasks. Hashemi and Ghanizadeh (2012) looked for the impact of critical discourse analysis (CDA) on the CT capacity of the learners. They showed that CDA effect CT in a positive and significant way "by its impact on learners' abilities of interpretation and

recognizing unstated assumption as well as on their choice of articles for classroom presentation" (p.44). Davidson and Dunham (1996) administered a quasi experimental study in which they measured the CT skills of the learners by associating CT with their writing proficiency. The CT skills and writing proficiency of experimental group improved more comparing to the control group took only a content-based English instruction. Having based his study on sociocultural theory via scaffolding, collaborative group works and mediation procedures, Turuk Kuek (2010) worked on the development of CT upon argumentative writing of students in ELT classrooms. Reading and writing activities significantly supported the CT. Lin (2018) has conducted an exploratory case study in order to measure and raise the awareness of learners in CT and to understand the effectiveness of CT instruction on the writing proficiency of them in an ELT classroom. She has found out that they students have gained more awareness on CT and they tend to employ their thinking skillfully while writing in English. According to the general conclusion dealing with the CT and reading-writing, the training was effective both on thinking and proficiency of learners in L2 reading writing activities along with their positive attitudes and awareness towards CT and language.

**2.12.2. Studies on CT in ELT field conducted in Turkey.** Commonly associated with critical literacy, reading and writing (e.g. Bağdat, 2009; Bahçe, 2012; Bedir, 2013; Gündüz, 2017; Güner, 2015; Işık, 2010; Şenol, 2015), CT has been a respected area in the field of ELT in Turkey. There is a quite number of studies administered in a descriptive manner trying to measure the CT level of the learners across different variables or to reveal the correlation between CT skills or dispositions and various phenomena like questioning habits, language proficiency, reading or writing performance, motivation, self-efficacy and etc. (e.g. Altay, 2013; Bedir, 2013; Bür, 2014; Karakoç, 2011; Özgür, 2007; Özmen, 2006;

Şenkaya, 2005; Şeker & Kömür, 2008; Tarakçıoğlu, 2008). Most of these descriptive studies have underlined that there is a significantly positive correlation between the variables such as metacognitive awareness, self-regulation, language proficiency and CT skill or disposition level of the learners. Furthermore, it is a consistent finding of most of the studies that the students commonly show a medium or high level of CT; however, even if they have a certain level of CT, they may have difficulties in using their critical thought effectively. According to Tarakçıoğlu (2008), this is because of the learners' lack of spoken language skills, experience in discussion tasks and their limited vocabulary.

Recently, there has been an increase in the number of studies investigating the effectiveness of a special training like argumentative, collaborative, constructivist on learners' level of CT or a specific course design integrated with CT on various phenomena such as learners' CT skills or dispositions, language proficiency, motivation, metacognitive, self-efficacy improvements. Majority of these studies have been employed with the college level students and some of the research have been directed to the lower level of learners from primary, secondary or high school (e.g. Akdağ, 2018; Bağdat, 2019; Bozkurt, 2019; Çalışkan, 2006; Deniz, 2019; Kazancı, 2014; Uğurlu, 2014). Bağdat (2009) measured the CT level of the 9th grade learners of English at the end of a constructivist language learning training and she concluded that the students in treatment group showed significant improvements in CT skills. Bozkurt (2019) tried to understand the effectiveness of a cooperative English course on the 9th graders' CT skills and she reached out significant results for some sub-dimensions of CT test.  Akdağ (2018) employed a remodeled English course design enhanced through CT to the 10th graders in a high school. He underlined that the study has strong and positive implications for further studies, curriculum and material developments. Deniz (2019)

conducted a study to reveal the effect of CT training on the participants' speaking skills in a secondary school ELT classroom. She employed CT activities (CTA) for sixteen weeks to the 6th grades EFL students and she found out that CTA improved the students' speaking skills in a significant way. Uğurlu (2010) studied on the development of CT skills by employing cooperative learning in her research group. Kazancı (2014) tried to reveal the effect of Web 2.0 tools on CT by adopting collaborative learning to the secondary school students. Both quantitative and qualitative results supported the thesis of the study; Web 2.0 tools instruction was effective to improve the CT skills of the learners through a special emphasis on collaborative learning. No matter what the additional focus is, the studies commonly signify the importance and effectiveness of the CT integration from earlier ages and lower proficiency level of learners. They report positive results for the development of CT skills and dispositions in EFL contexts together with the other phenomena affecting the successful foreign language improvement of the learners.

Experimental types of studies which measure the effectiveness of a special CT training for the pedagogic content of a college course have recently gained importance in Turkey (e.g. Bahçe, 2012; Bayram, 2015; Çelen, 2018; Demirbüken, 2019; Gündüz, 2017; Güner, 2015; Karakuzular, 2013; Ördem, 2016; Petek & Bedir, 2015; Şenol, 2015; Tufan, 2008; Yücel, 2008; Yücel Toy & Ok, 2010). Yücel (2008) conducted a mixed method research through which she has tried to reveal the effectiveness of CT integration to the development and learning course design for the college level of students. She evaluated the needs, design, implementation and outcomes by using Stufflebeam's Context, Input, Process, and Product evaluation model. Determining the problems of the previous course design through context evaluation, she redesigned the course in input evaluation stage. According to

the process evaluation, she concluded that the redesigned instruction was effective on the learning, thinking and metacognitive skills of the learners based on the student journals. She found out that there wasn't a statistical difference between the CCTDI pre-posttest results of the treatment and control group learners; however, the participants of the treatment group confirmed the effectiveness of the instruction. Karakuzular (2013) adapted the Numrich's sequence of CT skills into the English curriculum of a college department (Physical Therapy and Rehabilitation) and she collected quantitative and qualitative data from 10 participants. The study showed that given enough time, the participants have gained certain CT skills.

Accepting that the teachers should also have a certain level of CT for themselves, teacher education is considered as a quite important area of interest for the CT research lately. Researchers also focus on the in-service teachers' and pre-service teachers' thinking skills, their attitudes towards CT and teacher training for the success of CT instruction (e.g. Bayram, 2015; Bahçe, 2012; Bür, 2014; Çelen, 2018; Demirbüken, 2019; Güner, 2015; Karakoç, 2011; Özgür, 2007; Özmen, 2006; Petek & Bedir, 2015; Petek, 2016; Petek & Bedir, 2018; Şahin, 2014; Şeker & Kömür, 2008; Şenol, 2015; Toy & Ok, 2010; Tufan, 2008). Özmen (2006) administered a research among ELT teacher candidates and he found that that the participants have a limited mastery on CT skills. As well as the possession of CT skills, teachers' disposition level to use those skills is effective in their exploitation of the CT strategies in their teaching practice (Karakoç, 2011; Şahin, 2014); however, CT skill, disposition and awareness level of the prospective ELT teachers is revealed as medium in many studies (Tufan, 2008). The researchers agree on the necessity for innovations in teacher education as in pre or in-service trainings. Furthermore, being educated on teaching CT is not enough for the teachers; they should be fully developed to make CT a part of their academic, social and

professional life. In order to create a change in the thinking habits of their learners, teachers should be model for the skillful thinking and in order to model it, they should believe the importance of CT in language classes. Taking it as a basic step, Petek and Bedir (2015) studied on raising the awareness of ELT teacher candidates on the use of CT in language learning. They assert that being disposed to use CT; teacher candidates are more apt to use it in their own teaching experience. Bedir (2013) studied on the development of critical reading skills of the prospective teachers in ELT classrooms and he developed lesson plans to integrate the CT and L2 reading. He observed the acquisition and improvement of 35 CT strategies by Paul et al. (1989) and at the end of the study some of the strategies have been gained by the participants. There is another comprehensive study in which Petek and Bedir (2018) offered a comprehensive and usable framework for the development of CT in language teaching. This study was administered in the form of an action plan revealing the awareness and CT instruction practices of 8 prospective English teachers. The research suggests that the teacher candidates tend to be more motivated to use CT in their own teaching practices in the future if they are informed and instructed well on the necessity and administration of CT integration into ELT classrooms (Petek & Bedir, 2018).

The majority of the researches on CT tend to focus on the CT level or CT development of pre-service teachers of English or EFL learners in a college department (e.g. Bayram, 2015; Bahçe, 2012; Bür, 2014; Çelen, 2018; Güner, 2015; Karakoç, 2011; Karakuzular, 2013;  Ördem, 2016; Özgür, 2007; Özmen, 2006; Petek & Bedir, 2015; Petek, 2016; Petek & Bedir, 2018; Şeker & Kömür, 2008; Şenol, 2015; Toy & Ok, 2010; Tufan, 2008; Yücel, 2008). The researchers usually take a certain level of English proficiency (mostly advanced or upper intermediate) as a prerequisite for the employment of CT tests or

activities. Though the experimental studies have yielded for efficient results supporting the teachability of CT in EFL contexts or in the pedagogical content of English teacher education programs, these studies cannot be generalized into wider contexts covering elementary, secondary or high school students with lower proficiency levels. Experimental and quasi-experimental studies investigating the possibility of the infusion of CT into the English course curriculum for lower proficiency levels (elementary, pre-intermediate) are needed, but limited in number (e.g. Akdağ, 2018; Bağdat, 2019; Bozkurt, 2019; Çalışkan, 2006; Deniz, 2019; Kazancı, 2014; Uğurlu, 2014). The studies underlined that the training focusing on the improvement of CT skills of the learners is effective and applicable in EFL contexts with lower proficiency levels. Moreover, the learners have developed more positive attitudes and opinions towards the CT and the instruction process on it. According to the research in the field, students tend to be more motivated after the CT instruction. They regard the training productive and entertaining.

Accepting the importance of individuals' whole development for the requirements of the present era, the research focusing on the inclusion of 21$^{st}$ century skills in educational contexts has improved vastly in recent years. One of the basic necessities of the century, CT has come forward as an increasingly significant area of research for the modern educational environments. Most of the theoretical and empirical studies of CT underlined that it is a teachable phenomenon that should be covered in the curricula of the current systems. Updating their focus according to the changing trends of the time, foreign language learning researchers have studied on the determination of EFL learners' CT levels across various variables and on the infusion of CT in the pedagogic content of the present ELT curricula. Generally attributed to the abstract thinking and higher-level reasoning abilities, CT is tended

to be associated with the adult learners who have high proficiency level in English. The instruction on CT or the instruction incorporated through CT has been proven to be efficient to develop the CT skills, academic success, language proficiency, motivation, metacognition, self-efficacy and many other phenomena of the learners. Although the majority of the studies showed positive results for the effectiveness of CT inclusion in ELT classrooms, they are not generalizable to the wider EFL contexts because of their sample groups. The studies employed with lower proficiency and age groups from primary, secondary or high school contexts are sparse. This study tries to reveal the effectiveness of a CT embedded English course design for the 7th graders in a Turkish secondary school.

**Chapter 3**

**Methodology**

**3.1. Introduction**

The review of literature shows that there have been a quite number of studies administered to assess and analyze the critical thinking (CT) capacities of people. Besides the contexts which regard CT as an individual phenomenon, many researchers tend to relate CT to other content areas in their works. Based on their resemblance in cognitive nature, foreign language learning is one of many content areas that are associated closely with critical thought. However, most of the studies work on the thinking skills of adult EFL learners in that CT is thought to be a higher order skill which can be achieved only by adult and advanced level of students at the university or beyond. Furthermore, the researchers tend to conduct quantitative type of studies focusing only to measure whether the students have CT skills or if there is a significant correlation between CT and a certain phenomenon in the target language. Though the literature on the effectiveness of CT training is abundant; the experimental or case studies of secondary school EFL learners providing a practical support for the literature are sparse.

Having applied a language learning curriculum designed to cover six CT skills defined by Delphi Report (Facione, 1990), and "cognitive and affective thinking strategies" introduced by Paul et al. (1989), this study aimed to improve the secondary school EFL learners' CT skills which they transfer to the English course. Serving to the mutual aim, CT skills and cognitive and affective thinking strategies are the similar conceptualizations on the dimensions CT with an affective component distinction. In order to take the advantage of the guidance of both dimensions, the lesson plans were prepared to cover the CT skills and

cognitive and affective thinking strategies at the same time. As they direct to the common objectives for the cognitive aspects of CT, quantitative data collection tools were conducted to measure the gain of Delphi panelists' skills and their defined subskills (see Table 3), whereas the affective dimension was only observed through research journal.

## 3.2. Research Questions

Trying to reach out its aim, present study has worked on the following research questions:

1. What are the critical thinking levels of the participants in the control and treatment groups before and after the instruction process?

2. Is there a significant difference between the pretest scores of the treatment group who has the English training integrated with critical thinking and control group who has the Standard English Curriculum?

3. Is there a significant difference between the pre- and posttest scores of the control group who gets the Standard English Curriculum?

4. Is there a significant difference between the posttest scores of the treatment group learners who get the English training integrated with critical thinking and the control group learners who get the Standard English Curriculum?

5. Is an English course design enhanced with critical thinking skills effective for EFL learners to improve their critical thinking in ELT classrooms?

    a. Is there a significant difference between the pre- and posttest scores of the treatment group?

    b. Is there an increase in the frequencies of the critical thinking behaviors defined in the observation checklist?

c. What are the perceptions of the participants in treatment group on the effectiveness of critical thinking embedded English course design?

d. What are the perceptions of the researcher on the effectiveness of critical thinking embedded English course design?

6. What are the perceptions of the treatment group participants on

a. the activities applied during the critical thinking embedded English instruction process?

b. the materials used for the application of the critical thinking embedded English learning activities?

c. the instructor's attitude towards them during the instruction process?

d. the assessment ways preferred for the analysis and evaluation of students' improvement?

e. the transferability of the course gains across their future learning experiences in English and other disciplines?

## 3.3. Research Design

The present study aimed to measure the effectiveness of English course design supported with CT skills. Conducted throughout an educational term of the course, the study is quasi experimental in its design. In order to make statistical analyses of the participants' improvement in thinking critically skills and to reveal the perceptions and ideas of the learners in treatment group and the researcher on the effectiveness of the process, both quantitative and qualitative data collection ways were employed. The various types of data were collected concurrently for triangulation; so, the study had a mixed method research design.

Using a mixed method research design, the researchers reach out their objectives to evaluate and analyze the target issue with all aspects, to verify and triangulate the data with each other and to gain the confidence of research audiences who values the combination of methods (Dörnyei, 2007). The various aspects of a specific study define the type of mixed method research preferred. The "timing" of the data collection is one aspect that has an influence for the selection of the appropriate method. "Whether it will be in phases (sequentially) or gathered at the same time (concurrently)" is an important consideration while planning a research (Creswell, 2009, p.206). In present study, both qualitative and quantitative data were collected concurrently. "Weighting" is another factor of the mixed methods research considerations. Both types of data, quantitative and qualitative, were equal in weight in the data analysis and they had equal contribution for answering research questions in this research; however, the primary focus was the quantitative results gathered from both control and treatment groups' Critical Thinking Skills Scale Set scores which were compared for the measurement of the effectiveness of CT integration in an EFL context. For the identification of its "mixing" approach, this study can be said to embed two forms of data. The secondary qualitative data had a supporting role for the interpretation of primary quantitative data. Furthermore, Creswell (2009) differentiates between the sequential and concurrent procedures and identified three strategies under each procedure. He defines sequential explanatory strategy, sequential exploratory strategy and sequential transformative strategy to be used according to the objectives of the research designs which employ data collection ways in a sequence. Under the concurrent procedures in which the researchers manage the quantitative and qualitative data collection processes simultaneously, there are concurrent triangulation strategy, concurrent embedded strategy and concurrent

transformative strategy. In a concurrent triangulation model, "the weight is generally equal

between the two methods" (quantitative and qualitative) and the mixing is during the

"interpretation or discussion" section (Creswell, 2009, p.213). Concurrent embedded model is

similar to the triangulation model in that they both use quantitative and qualitative data

collection methods concurrently; however, unlike triangulation, embedded model "has a

primary method that guides the project and a secondary database that provides a supporting

role in the procedure" (Creswell, 2009, p.214).

Figure 1

*Research design*
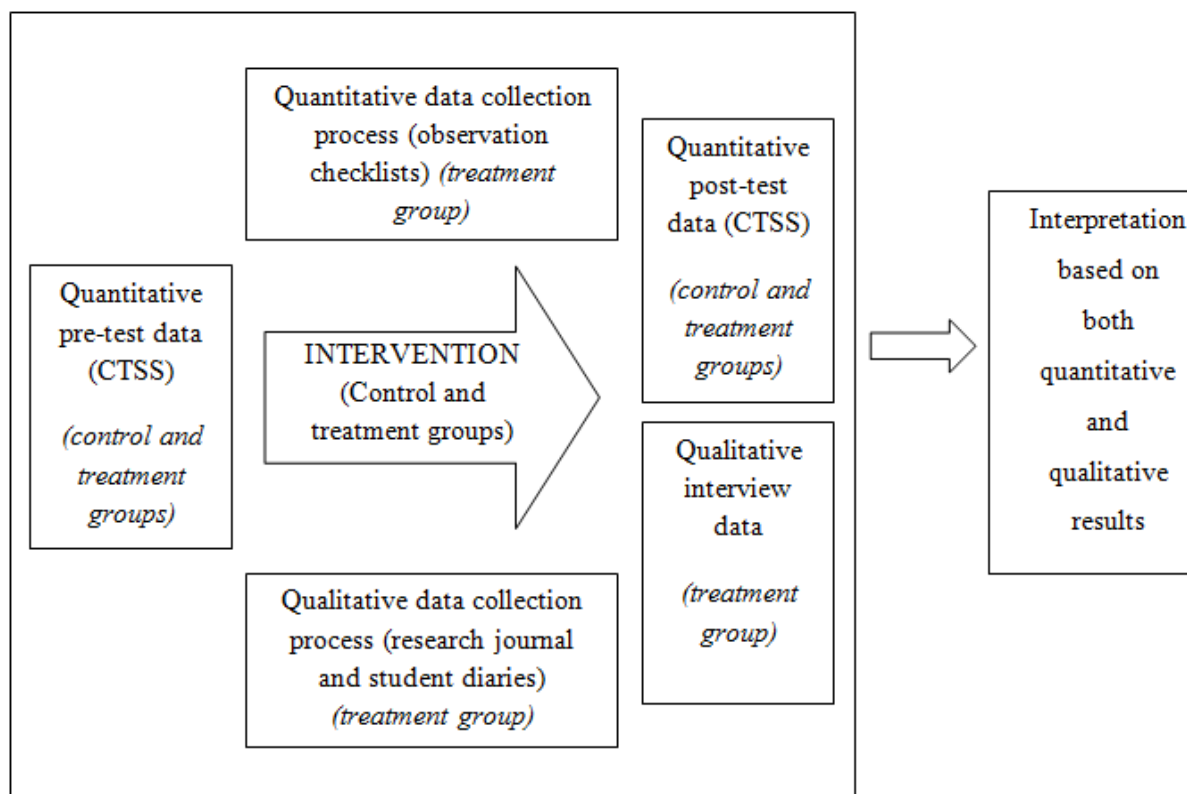


This study had a concurrent embedded mixed method research design (Creswell,

2009) in that it used various data collection tools simultaneously in order to complete the

missing points of a single one (Figure 1). Quantitative data gathered from pre and post

measures of critical thinking scales was the primary focus trying to reveal the effectiveness of CT embedded English course design by making a comparative analysis between control and treatment groups. However, collected data could give only one-way answers to the research questions, "whether there was a significant difference between the groups or not" or "whether there was an improvement in the treatment groups' CT or not". Qualitative data helped to the interpretation of the significance level and the understanding of reasons, opinions, results and solutions in a detailed way. This study aimed to make a detailed analysis on the applicability of a CT embedded English course design in an EFL context and to make implications on the activities, materials, assessment, teacher attitude, and transferability issues. For a comprehensive understanding on the CT capacities, attitudes and perceptions of the participants, both quantitative and qualitative ways yielded for fruitful insights.

### 3.4. Sampling and Participants

The school in which the study was administered was chosen through convenience sampling according to the researcher's working hours. Through cluster sampling two 7th grade classes became the focus groups among others in a Turkish state secondary school. The classes were randomly assigned into two groups as control and treatment groups. In each group there were 31 students. The students were between the ages of 12-13. Their proficiency level in English was elementary and some students were at the pre-intermediate level.

7th grade students were the targets of research because of several reasons. Prominent psychologist Jean Piaget has defined four stages of cognitive development: sensory motor stage covering the ages from birth to 2 years, preoperational stage including ages from 2 to 7 years, concrete operational stage from 7 to 11 years and formal operational stage starting from the age of 12 and continuing further. Considering their psychological properties, the

participants of the present study were at the formal operational stage in which they have the capability for hypothetical and deductive reasoning, problem solving skills and metacognition. They have developed their abstract thinking which was an important booster for their CT skills. The second reason for choosing $7^{th}$ grade students instead of the $8^{th}$ graders who can achieve formal operations more successfully, was about the institutional considerations. In Turkey, at the end of secondary school, $8^{th}$ grade, the students are supposed to have a high-school entrance exam (LGS) in order to attend the qualified high schools determined by the National Education Council. Even though it is not an obligatory exam to continue their education in high school, most of the students get in the exam for studying at a qualified high school. The fact that there is a common curriculum which the students are required to cover during their $8^{th}$ grade, there isn't much room for the individual changes and methods employed by the educators. In order to keep the equality of all students, it would not be ethical to differentiate between the methods and activities conducted in the control and treatment groups. That's why the $7^{th}$ grade students were chosen because they have one year to go before the exam. Furthermore, the participants were in their third year of secondary school so they were thought to be used to their classroom environments and English course which could be a problematic issue for lower grade students from time to time.

It is important to note that, as the participants were below 18 and they were school students, it was seen ethical to take a consent form from the families of the students (Appendix 5). The participants were given the freedom of not to participate in some of the data collection processes. They didn't feel comfortable with the voice recording issue during the courses and they tended not to participate in the activities and express their opinions willingly while the course was recorded. The researcher tried to compensate for the lack of

recorded classes with the field notes kept during or just after the class sessions and added those notes to the research journal.

**3.5. Data Collection Instruments and Procedures**

With the aim of triangulate the data to make deeper analyses and inferences on the participants' capabilities to think critically, the present study has a concurrent embedded type of mixed method research design which employed both quantitative and qualitative ways at the same time.

Table 12

*Data Collection and Analysis in the Light of Research Questions*

| Research questions | Data collection instruments | Data collection group | Data analysis |
|---|---|---|---|
| 1. What are the critical thinking levels of the participants in the control and treatment groups before and after the instruction process? | CTSS (Demir, 2006) | Both control (n=31) and treatment (n=31) groups | Descriptive statistics |
| 2. Is there a significant difference between the pretest scores of the treatment group who has the English training integrated with critical thinking and control group who has the Standard English Curriculum? | CTSS (Demir, 2006) | Both control (n=31) and treatment (n=31) groups | Descriptive statistics *(Independent Samples T-Test)* |
| 3. Is there a significant difference between the pre- and posttest scores of the control group who gets the Standard English Curriculum? | CTSS (Demir, 2006) | Control (n=31) group | Descriptive statistics *(Paired Samples T-Test)* |
| 4. Is there a significant difference between the posttest scores of the treatment group learners who get the English training integrated | CTSS (Demir, 2006) | Both control (n=31) and treatment (n=31) groups | Descriptive statistics |

| | | | |
|---|---|---|---|
| with critical thinking and the control group learners who get the Standard English Curriculum? | | | *(Independent Samples T-Test and Mann Whitney U Test)* |
| 5. Is an English course design enhanced with critical thinking skills effective for EFL learners to improve their critical thinking in ELT classrooms? | | | |
| a. Is there a significant difference between the pre- and posttest scores of the treatment group? | CTSS (Demir, 2006) | Treatment group (n=31) | Descriptive statistics *(Paired Samples T Test and Wilcoxon Signed Ranks Test)* |
| b. Is there an increase in the frequencies of the critical thinking behaviors defined in the observation checklist? | Observation Checklist | Treatment group (n=31) | Descriptive statistics *(Frequencies)* |
| c. What are the perceptions of the participants in treatment group on the effectiveness of critical thinking embedded English course design? | Interviews Student Diaries | Treatment group (n=31) | Content analysis |

| | | | |
|---|---|---|---|
| d. What are the perceptions of the researcher on the effectiveness of critical thinking embedded English course design? | Research Journal | Researcher | Content analysis |
| 6. What are the perceptions of the treatment group participants on … | | | |
| a. the activities applied during the critical thinking embedded English instruction process? | Interviews | Treatment group (n=31) | Content analysis |
| b. the materials used for the application of the critical thinking embedded English learning activities? | Interviews | Treatment group (n=31) | Content analysis |
| c. the instructor's attitude towards them during the instruction process? | Interviews | Treatment group (n=31) | Content analysis |
| d. the assessment ways preferred for the analysis and evaluation of students' improvement? | Interviews | Treatment group (n=31) | Content analysis |
| e. the transferability of the course gains across their future learning experiences in English and other disciplines? | Interviews | Treatment group (n=31) | Content analysis |

**3.5.1. Quantitative data collection.** In order to make statistical analyses to measure or observe the learners' possession of CT skills and their subskills before, during and after the intervention, quantitative ways were used. Quantitative part of the study was composed of pre- and posttest examinations of control and treatment groups through a critical thinking skills test and an observation checklist completed in the beginning, middle and end of the process for each one of the students in treatment group.

*3.5.1.1. Critical Thinking Skills Scales Set.* The first and main data collection tool of the study was a critical thinking skills scales set which was used as the pretest and posttest to measure the CT level of both control and treatment group participants before and after the instruction process.

*3.5.1.1.1. Rationale.* Many of the researches in the field measure the level of CT upon the skills which it demands. As one of the most prominent studies on CT, Delphi Report has identified six basic CT skills and their brief explanations. These are interpretation, analysis, inference, explanation, evaluation, and self-regulation (Facione, 1990).

In order to assess the initial CT level of the students at the beginning and measure the effectiveness of CT instruction at the end of the CT training process, "Critical Thinking Skills Scales Set" prepared by Demir (2006) was used as pretest and posttest (Appendix 4). The scales take the CT skills and subskills identified by Delphi Report experts into the basis (Facione, 1990). Critical Thinking Skills Scales Set (CTSS) aims to check the CT level of students by covering a separate scale for each skill. The first three scales are analysis, evaluation and inference scales which are true-false tests with 8, 9 and 8 questions respectively. Interpretation and explanation scales consist of the same reading passages and 10 and 9 multiple choice questions respectively related to these passages. The first five scales, analysis, evaluation, inference, interpretation and explanation are coded in two ways, as "0" or "1". The last scale is on the self-regulation skill interrogating the self-awareness and self-

correction level of the students and it covers 12 questionnaire types of questions with three possible answers: "always, sometimes, never". The validity and reliability were guaranteed through expert opinions, test- retest, biserial correlation, and product-moment correlation coefficient for the true - false tests; item difficulties, point biserial correlation and Kuder-Richardson (KR20) for the multiple-choice tests; factor analysis and Cronbach's Alfa for the 3 point likert scale by Demir (2006). He calculated the reliability of the of the tests respectively; "0.708" for the Analysis; "0.855" for the Evaluation; "0.696" for the Inference; "0.707" for the Interpretation; "0.768" for the Explanation and "0.91" for the Self-Regulation scales.

*3.5.1.1.2. Procedure.* CTSS (Demir, 2006) was an appropriate measurement tool for the objectives of the present research in that it consists of separate scales on the CT skills defined by Delphi researchers. However, Demir (2006) developed his scale for a large sample of participants from 4th and 5th grade students. His study had a quantitative research design aiming to find out the CT capacity of the participants. The present study aimed to measure the effectiveness of a CT instruction integrated with 7th grade English course curriculum; it was a quasi-experimental research for its quantitative part and it used the scale twice as pre- and posttests. Because of the different designs of the present study and the original study for which the scales set was created, the validity and reliability analyses were administered by the researcher for this specific case of measurement. For the content validity, researchers who are successful in their fields were consulted on the readability, clarity and comprehensiveness of the scales. Two experts who were familiar with CT and the aim and procedure of this research, one expert qualified in educational assessment and one expert in the field of ELT confirmed the usability of the CTSS for the aims of the present study with the target participants. In order to check the construct validity through factor analyses and to calculate the reliability of the measurements for this research, pre-piloting and piloting studies were

conducted.  A pre-piloting administration of the test was done with a small group of students in order to decide on the timing and feasibility of the CTSS. It was applied to 24 7th grade students at the same age and proficiency level with the participants of the research. Students were not observed to have difficulties in understanding the instructions and they could complete the test within 40 minutes (a class hour). The second and main piloting of the study was administered with 253 7th grade students in a state school; the piloting data was collected for the factor analysis of the items in the text and for the reliability checks of the scales. The items were analyzed through tetrachoric factor analysis for the dichotomous variables (coded as 1 or 0) of the Analysis, Evaluation, Inference, Interpretation, Explanation scales and through exploratory and confirmatory factor analyses for the 3-point likert type Self-Regulation subscale. Tetrachoric factor analysis was administered through FACTOR program while SPSS was used for the exploratory factor analysis and AMOS 22 was used for the confirmatory factor analysis. The reliability was calculated through KR20 for the Analysis, Evaluation, Inference, Interpretation and Explanation scales in TAP program and through Cronbach's Alpha for the Self-Regulation scale in SPSS. The reliability scores were 0.57 for Analysis, 0.66 for Evaluation, 0.62 for Inference, 0.63 for Interpretation, 0.74 for Explanation and 0.61 for Self-Regulation.

For the Analysis, Evaluation, Inference, Interpretation and Explanation scales, Kaiser-Meyer-Olkin (KMO) values were observed within standard intervals and Bartlett's statistics were found to be significant (Table 13).

Table 13

*Kaiser-Meyer-Olkin (KMO) Test Values and Bartlett's Statistics of Analysis, Evaluation, Inference, Interpretation, Explanation Scales of CTSS*

| Kaiser-Meyer-Olkin (KMO) Test Values | Bartlett's Statistics |
| --- | --- |

| | | |
|---|---|---|
| **Analysis** | 0.55 | 493.7 (df=15; P=0.000000) |
| **Evaluation** | 0.75 | 709.3 (df=28; P=0.000010) |
| **Inference** | 0.70 | 370.7 (df=15; P=0.000000) |
| **Interpretation** | 0.73 | 1329.1 (df=45; P=0.000010) |
| **Explanation** | 0.77 | 1168.1 (df=28; P=0.000010) |

Through FACTOR Program, tetrachoric factor analysis was conducted in order to reveal the Cumulative Proportion of Variance, RMSEA, CFI, GFI, RMSR, factor loadings and reliability values (Table 15). The acceptable and excellent values for the fit indexes were shown in Table 14. Regarding the necessity of factor loadings being minimum 0.30, the items with a factor load below .30 were excluded from the scales. The items 7 (with a 0.05 factor load) and 8 (F=0.30) were excluded from the Analysis scale together with the item 1 (F=0.06) from the Evaluation, item 1 (F=0.23) and 3 (F=0.29) from the Inference, item 1 (F=21) from the Explanation scales.

Table 14

*Acceptable and Excellent Values for the Fit Indexes of the Scales in Present Study*

| Fit Indexes | Acceptable fit values | Excellent fit values |
|---|---|---|
| **X2/df** | X2/df< 5 | X2/df< 2 |
| **GFI** | .90<GFI<.95 | .90<GFI<1.00 |
| **CFI** | .90<CFI<.95 | .95<CFI<1.00 |
| **SRMR** | .05<SRMR<.10 | .00<SRMR<.05 |
| **RMSEA** | .05<RMSEA<.10 | .00<RMSEA<.05 |

Table 15

*Tetrachoric Factor Analysis Results of Analysis, Evaluation, Inference, Interpretation, Explanation Scales of CTSS*

| Scales | Items | Factor loadings | Tetrachoric Factor Analysis Results |
|---|---|---|---|

| Analysis | 1 | 0.54 | Variance | 0.42 |
|---|---|---|---|---|
| | 2 | 0.53 | RMSEA | 0.068 |
| | 3 | 0.34 | CFI | 0.97 |
| | 4 | 0.90 | GFI | 0.94 |
| | 5 | 0.64 | RMSR | 0.13 |
| | 6 | 0.31 | | |
| Evaluation | 2 | 0.41 | Variance | 0.46 |
| | 3 | 0.66 | RMSEA | 0.000 |
| | 4 | 0.55 | CFI | 1.005 |
| | 5 | 0.61 | GFI | 0.98 |
| | 6 | 0.63 | RMSR | 0.077 |
| | 7 | 0.71 | | |
| | 8 | 0.78 | | |
| | 9 | 0.53 | | |
| Inference | 2 | 0.53 | Variance | 0.45 |
| | 4 | 0.74 | RMSEA | 0.018 |
| | 5 | 0.64 | CFI | 0.99 |
| | 6 | 0.53 | GFI | 0.97 |
| | 7 | 0.57 | RMSR | 0.089 |
| | 8 | 0.47 | | |
| Interpretation | 1 | 0.60 | Variance | 0.45 |
| | 2 | 0.95 | RMSEA | 0.015 |
| | 3 | 0.47 | CFI | 0.99 |
| | 4 | 0.63 | GFI | 0.97 |
| | 5 | 0.40 | RMSR | 0.078 |

|  |  |  |  |  |
|---|---|---|---|---|
|  | 6 | 0.37 |  |  |
|  | 7 | 0.58 |  |  |
|  | 8 | 0.88 |  |  |
|  | 9 | 0.31 |  |  |
|  | 10 | 0.81 |  |  |
| **Explanation** | 2 | 0.38 | **Variance** | 0.54 |
|  | 3 | 0.39 | **RMSEA** | 0.000 |
|  | 4 | 0.73 | **CFI** | 1.001 |
|  | 5 | 0.91 | **GFI** | 0.99 |
|  | 6 | 0.62 | **RMSR** | 0.062 |
|  | 7 | 0.72 |  |  |
|  | 8 | 0.77 |  |  |
|  | 9 | 0.87 |  |  |

Self-Regulation scale was a three-point likert scale and its factor analysis was administered by exploratory factor analysis (EFA) through SPSS and confirmatory factor analysis (CFA) through AMOS 22. In order to define the factor structure of the subscale, EFA was conducted. After checking the consistency of KMO (0.69) and Bartlett's values (238.264; df=36 P= 0.00) for EFA, Principal Component Analysis was employed through Oblimin with Kaiser Normalization rotation. According to the Initial Eigenvalues, there were three factors in the scale and the factor structure was revealed through Pattern Matrix. The item 9 (0.38) was grouped under two factors and items 5 and 8 couldn't be categorized under any factors so they were decided to be excluded from the scale. The second phase of the analysis was the confirmatory factor analysis to determine the usability of the scale for the present research. The chi square, GFI, CFI, SRMR, RMSEA values and the factor loads were revealed (Table 16). Although the fit indexes were significant and appropriate to use, the factor loads were

quite lower than .70 which is the minimum value; so, the Self-Regulation subscale was excluded from the CTSS for the present study.

Table 16

*Confirmatory Factor Analysis of the Self-Regulation Subscale of CTSS*

| Items | Factor loadings | Confirmatory Factor Analysis Results | |
|-------|-----------------|--------------------------------------|---|
| 1 | 0.48 | X2/df | 1.82 |
| 2 | 0.64 | GFI | 0.99 |
| 3 | 0.65 | CFI | 0.90 |
| 4 | 0.44 | SRMR | 0.02 |
| 6 | 0.48 | RMSEA | 0.057 |
| 7 | 0.47 | | |
| 10 | 0.52 | | |
| 11 | 0.52 | | |
| 12 | 0.27 | | |

The Analysis, Evaluation, Inference, Interpretation and Explanation scales were administered as pretest at the beginning of the CT instruction. All the participants in both control and treatment group took part in the test and the aim was to measure the CT abilities of the learners before the training process. Students were given all five scales at the same time and they felt free to complete answering the scales in a preferred order by themselves in 40 minutes. At the end of 16 weeks of instruction on CT, students were supposed to answer the scales again as the posttest. Both the control and treatment group of learners participated in the assessment process because the aim was to measure the effectiveness of CT training and to understand whether there would be a significant difference between the learners in treatment group which was exposed to CT integrated language learning and the learners in control group which took a language learning without a specific CT emphasis.

***3.5.1.2. Observation checklist.*** The second quantitative data collection tool of the study was observation checklists completed for each participant in the treatment group three times during the instruction process, in the beginning, middle and end.

*3.5.1.2.1. Rationale.* Observation checklists are the data collection methods of quantitative type of observation which is administered in a structured way. The target phenomena are observed by the researcher and he or she decides whether they exist in the observed group or to which extent the participants have them. The data gathered through quantitative observations is close-ended in nature because it is used to confirm the certain phenomena such as checking the existence of certain behavior or the applicability of research hypotheses (Johnson & Christensen, 2010). According to Johnson and Christensen (2010) quantitative observation is explained through "quantitative data such as counts or frequencies and percentages" (p.207).

*3.5.1.2.2. Procedure.* The observation checklist based on Delphi Report's basic CT skills and their subskills aimed to check whether the treatment group participants would show the behaviors related to those skills or not. The aim was to look for the improvement of the students on the CT skills and subskills (Appendix 7). The checklist was created by the researcher and the validity of it was guaranteed through four experts' opinions. Two experts familiar with the aim of the research and CT, one expert qualified in educational assessment and one expert in the field of ELT confirmed the usability of observation checklist in present study.

The observation checklist was completed three times for each student during the whole process. Time-interval sampling was used and every one of the students was observed during the English courses throughout a week in the beginning, middle and end of the CT instruction process. However, the treatment group had 31 students and it was not reasonable to analyze each student in a detailed way during a week with such a large number. It was

more realistic to make a close observation and improvement analysis based on this observation with a small number of students; so, a special observation method was employed through which the students were observed in groups. In order to be observed carefully, the students were classified into three groups randomly without adopting any specific criteria according to their classroom list. The observation process was organized in a way that each group was monitored during a week respectively. The participants in group one were observed in the second, eighth and fourteenth weeks whereas the group two was monitored during the third, ninth and sixteenth weeks of the instruction. The last group's observation processes were conducted during the fourth, tenth and seventeenth weeks of the instruction.

Table 17

*A Sample Subskill Part from Observation Checklist*

| CT skill | CT subskills | CT behaviors | *beginning* | *middle* | *End* |
|---|---|---|---|---|---|
| **Interpretation** | Categorization | to recognize … | | | |
| | | to determine … | | | |
| | | to make … | | | |
| | | to classify … | | | |
| | Decoding | to detect and describe … | | | |
| | Significance | to appreciate … | | | |
| | | to discern … | | | |
| | Clarifying | to restate … | | | |
| | Meaning | to find … | | | |
| | | to develop … | | | |

**3.5.2. Qualitative data collection.** Considering the fact that quantitative data collection ways were limited in their explanation of some important points for this research, qualitative data collection tools were used. In order to reveal the ideas and perceptions of the

researcher and the treatment group participants on CT and its integration in English course and to make deeper analysis on the effectiveness of the specific instruction, a research journal, student diaries and interviews form the complementary tools of the present study. The research journal and the students' reflection diaries were kept starting from the second week to the last week of the process while the interviews were administered in the final week.

      ***3.5.2.1. Research journal.*** One of the qualitative data collection tools is the research journal kept by the researcher (and also the instructor of the course) from the beginning until the end of the instruction process for the individual observations on the participants in treatment group.

      *3.5.2.1.1. Rationale.* Research journals are decent ways to organize the details, opinions, analyses and hypotheses about the ongoing study (Dawson, 2009). Regular field notes in a standard and detailed format play an administrative role for the progress of the research. Keeping a research journal regularly, the researchers can manage the time, methods and activities more effectively by determining the drawbacks and strong points of the previous sessions of the process (Dörnyei, 2007). They can also reflect on their own performance and regulate their methods and attitudes analyzing their own observations and opinions.

      Although the field notes and research journals provide the researchers with various and fruitful data, it is important to note that the abundance of data may be blindfolding. The researchers need to analyze the journal data carefully and appropriately by following certain procedures according to their needs (McDonough & McDonough, 2006).

      *3.5.2.1.2. Procedure.* For the present study, keeping a detailed journal was a kind of guide for the researcher to fill in the observation checklist which questioned the CT abilities of the learners. Journal data was a valuable source for the analysis of the instruction process, its drawbacks, rising moments, strong and weak sides; so, it tolerates the missing parts of one-

way, structured quantitative data collection tools. Moreover, through the journal notes, the learners' use of affective and cognitive thinking strategies which were in line with the six CT skills was analyzed.

The researcher kept the journal throughout the whole process during 18 weeks. In order to get maximum benefit from the journal, the data were recorded in a detailed way just after the courses twice a week. Individual notes for the participants, comments and criticisms on the instruction process, opinions about the present conditions and possible improvements on the method and activities are some of the focus points of the researcher.

***3.5.2.2. Student diaries.*** Students' reflective diaries are one of the qualitative data collection ways used for both its possible contributions to the data analysis process and its benefits for the CT development of the treatment group participants with a self-regulation focus.

*3.5.2.2.1. Rationale.* Asking students to keep diaries is a way to drag them into the study as active participants. By keeping diaries, participants can be "co-researchers as they keep record of their own feelings, thoughts, or activities" (Dörnyei, 2007, p.157). Offering an honest description of their ideas, the students assess their own progress and provide fruitful insights to the researcher from various points of views. Motivating students to keep the diaries in an objective way helps them use their CT to think, analyze, interpret and evaluate the instruction process, teacher attitude, activities and their own performance and progress.

*3.5.2.2.2. Procedure.* In order to understand the effectiveness of study and discover the students' ideas about the training process, students were requested to write reflective learning diaries. Participants wrote the diaries from the beginning of training at the end of each week.

According to Dörnyei (2007), it is important to make diaries "user-friendly" and "convenient" in that the students can easily and willingly write down their ideas. The learners

were hesitated to write diaries in the beginning of the process; so, the researcher made the diary keeping as a weekly assignment for the students and emphasized that even small, each idea matters and was worth sharing. With the aim of making the writing process convenient for the students and to avoid from the drawbacks of students' lack of proficiency in English, they were asked to feel free to use Turkish if it would be the best way to express their ideas easily about the training process.

It is important to note that not all the students in treatment group participated in journal writing willingly and actively. There were some students who did not keep journals regularly or who didn't hand in their journals at all. Although they were given the freedom of writing the journals in Turkish, the participants generally kept their journals in English so some of the students with lower proficiency levels might feel intimidated to create utterances regularly. Because of their limited proficiency level, the students sometimes wrote short sentences or phrases which were not grammatically correct or meaningful all the time. There were also some irrelevant data about their experiences in other disciplines or daily routines in the journals so they were excluded from the analysis.

*3.5.2.3. Interviews.* Interviews are the qualitative data collection ways administered with the treatment group participants after the instruction process.

*3.5.2.3.1. Rationale.* Interviews are commonly used ways for data collection in order to find detailed answers to the research questions. They can be the main instruments whereas the researchers can employ them to add more information to the gathered data through other methods or can check the consistency of the data within the triangulation process (McDonough & McDonough, 2006). Quantitative data collection ways may yield significant information however they can lack of the necessary depth for some studies. A detailed description and a commentary evaluation on the process are needed. Interviews provide the

researches detailed insights on the opinions of the participants on the effectiveness of the study.

Interviews can be unstructured, structured, or semi-structured according to their organization of the questioning. With a flexibility provided by the researcher, respondents give various and fruitful ideas which create new directions to analyze in an unstructured interview. If the interview is administered through a list of questions that needed to be answered by every participant, the interview is structured. Although there is "little room for variation or spontaneity", structured interviews offer an opportunity to make better comparisons between the responses (Dörnyei, 2007, p.135).

*3.5.2.3.2. Procedure.* The basic reason to employ an interview for this study was to triangulate the quantitative data and check the consistency of students' answers with the data gathered through research journal and student diaries. Moreover, it is believed that through interviews, more detailed and productive insights could be gained on the CT development of the learners and their opinions on the necessity and effectiveness of that concept. Regarding the participants' ideas on the CT embedded English course design, training activities, materials, teacher attitude, assessment and the transferability of CT to their future learning experiences in English and in other disciplines, the researcher could analyze the big picture from a counter perspective and provide appropriate insights on the improvement of CT skills in an ELT classroom. The interview questions were prepared by the researcher and the opinions of four experts who knew all about the research and process were gathered on the structure and content of the interview questions.

In this study, the participants were asked to answer the pre-structured, open-ended interview questions (Appendix 6). Thus, it was a structured interview. The interview was done at the end of the CT instruction, at the last week of the term. 31 participants in the treatment group were supposed to answer the questions; however, 11 students were absent on

day the interview was administered, so 20 students could participate in the interview. The interviewees were asked to answer questions and express their ideas freely on CT embedded English course design, training activities, materials, teacher attitude, assessment and the transferability of CT to their future learning experiences in English and in other disciplines. Because of the time constraints and the desire to keep the anonymity of the participants to enhance their objective responses to the interview questions, the interview was conducted in a written way through pen and paper. The participants were not supposed to give their names and they stated that through anonymity, it was easier to express their negative comments, too. The questions were in Turkish and students were asked to use their preferred language in order to avoid from the disadvantages of their missing vocabulary and lack of proficiency in English.

## 3.6. Data Analysis

Consisting of quantitative and qualitative data collection tools, this study used a variety of data analysis ways. This section describes the methods for validation of the present research together with the detailed explanation of the analysis of collected data.

**3.6.1. Validity issues.** Trying to make strong analyses for the achievement of research objectives, empirical studies use sound and valid data collection methods. The validation ways differ according to the types of research. For the validation of a mixed method research, Dörnyei (2007) proposes a three-dimensional quality analysis for the mixed method studies: "(a) the rationale for mixing methods in general; (b) the rationale for the specific mixed design applied, including the choice of particular methods; and (c) the quality of the specific methods making up the study" (Dörnyei, 2007, p.62). The main problem and aims of the present study gave direction to the formation of its research questions. In order to answer the research questions in a detailed way, various data collection tools addressed to the specific questions. Defined as "triangulation", employment of both quantitative and qualitative data is

an efficient way to realize the research validity. Furthermore, the validity of the both types of data separately is important to enhance the overall validity of the research study.

   *3.6.1.1. Validity of the quantitative part.* In order to boost the quality of the whole study, each of the components making up the study needs to be qualified, too. In the quantitative part of the study, the research validity and measurement validity were controlled (Dörnyei, 2007).

   Measurement validity cover the terms of construct, content and criterion validity and it is about the validity of "the interpretation of the score with regard to a specific population" (Dörnyei, 2007, p.50). Content validity of the CTSS, observation checklist and interview questions were guaranteed through expert opinions. Construct validity of CTSS was checked by the factor analysis of the scales separately.  For the dichotomous Analysis, Evaluation, Inference, Interpretation and Explanation scales, tetrachoric factor analysis was conducted via FACTOR program. Kaiser-Meyer-Olkin (KMO) values were observed within standard intervals and Bartlett's statistics were found to be significant for all scales. The Cumulative Proportion of Variance, RMSEA, CFI, GFI, RMSR and factor loadings were revealed for each item and the items with factor loadings below 0.30 were excluded from the scales (Table 15). For the 3-point likert type of "Self-Regulation" scale of CTSS, exploratory factor analysis was done through SPSS and confirmatory factor analysis was conducted through AMOS. Because of the low factor loads of its items, Self-regulation scale was not included in the CTSS for present study.

   For the research validity of the study, external and internal validity were the main issues. External validity relates to the generalizability of the results to similar contexts whereas the internal validity "addresses the soundness of the research" (Dörnyei, 2007, p.50). Regarding internal validity as an important step for the quality of this study, the effects of some threats were tried to be diminished. These were the testing and practice effect,

implementation threat, diffusion of treatment, compensatory rivalry, Hawthorne effect, social desirability bias, location and timing of the assessment.

A serious threat in experimental type of studies is about the testing and practice effect caused from the participants' recall of the questions or their study of them. There were sixteen weeks between the pretest and posttest and time was long enough to prevent any recall; moreover the students were not told the date of the posttest in order to hinder the effect of practice. The validity of the study is also affected from the implementation threat (Freankel & Wallen, 2003). The researcher was the only English instructor of the groups throughout the instruction process. Furthermore, all the possible threats of time and location for the application of pre and posttests were excluded by applying the tests at the same time, in the same place.

In order to eliminate the effect of diffusion of treatment between the groups, the students in control and treatment groups were not informed on the difference of applications employed in both groups (McMillan & Schumacher, 2001). Furthermore, compensatory rivalry is another issue in the case that the students in control group are aware of the dissimilarity of activities applied in both control and treatment groups and they study hard to compensate for their lack of issued training. For preventing this additional effort, the students in control group were not illuminated about the CT training of the treatment group.

Hawthorne effect is an important issue which is the condition of participants' acting differently when they are aware of the training and assessment process. To handle this, video or audio recordings of the training sessions were cancelled because the students tended to talk about irrelevant issues about which they feel safe or they chose not to talk at all while being recorded. Besides, there are some cases in which the students behave in the anticipated way to cover the expectations and desires of the researcher. Triangulation of the data and the length of the instruction process decreased the probability of this social desirability bias.

*3.6.1.2. Validity of the qualitative part.* According to some researchers, as there are basic differences in their nature, quantitative and qualitative studies don't share the same procedures for the achievement of validity or as it is called in qualitative terminology, trustworthiness. For the achievement of trustworthiness in qualitative data collection, the concepts of credibility, dependability and transferability are closely examined (Graneheim & Lundman, 2004). Credibility is about how well the data serves to the purpose of the research and it is about making sure of the inclusions and exclusions appropriately without causing any misconception. Triangulation is a way to increase the validity of research. Dependability refers to "the degree to which data change over time and alterations made in the researcher's decisions during the analysis process" (Graneheim & Lundman, 2004, p.110). It is important to keep the consistency of the data over time. Third component of trustworthiness is transferability. A qualitative data collection process is trustworthy if the same process can be applied to a similar setting and participants. In order to facilitate transferability, the researcher needs to give a detailed description on the characteristics of the participants, qualities of the setting, data collection tools, process and analysis, instruction methods and process.

This study is credible in that it used specific data collection ways to the realization of the research objectives and triangulation of the data (Creswell & Miller, 2000). However, the opinions expressed by the participants through various tools like interview and diaries were limited and they were in a repetitive manner causing some exclusion. The study can also be regarded as dependable in that it didn't last for a long time to create ambiguities and change of minds. The interview was administered at the end of the study and the students' reflective diaries were asked to be kept for detecting the changes in the perceptions and opinions of the participants. As the research design, data collection process, instruction process, setting and participants were clearly described through detailed sections, tables and charts; it is transferable to the similar contexts with a careful examination of the methodology.

**3.6.2. Quantitative data analysis.** The quantitative data of the study was analyzed

through statistical analyses in Statistical Package for the Social Sciences (SPSS), Package 24.

For the evaluation of CTSS, various operations were conducted while the frequency and

percentages were calculated for the observation checklists.

*3.6.2.1. Analysis of the Critical Thinking Skills Scales Set.* The present study is

quasi-experimental in its quantitative part. There were treatment and control groups which

were exposed to the CT Skills Scales Set (Demir, 2006) as a pretest and posttest at the

beginning and end of an instruction process. For quasi-experimental designs, if the groups

show a normal distribution, there are two ways to make statistical analyses. One way is to

calculate the difference between the "gain scores" of the control and treatment groups "by

subtracting the pretest scores from the posttest scores" and make statistical comparisons

between these scores conducting a t-test or ANOVA (analysis of variance) in order to figure

out whether the treatment group performed significantly higher or not (Dörnyei, 2007, p.119).

The other way is to run ANCOVA in which the posttest scores of the control and treatment

groups are compared by controlling the pretest scores of the both groups as covariate.

Tabachnick and Fidell (2013) propose the use of ANCOVA for the analysis of pretest and

posttest scores of the groups if the assumptions are met; on the other hand if the ANCOVA

assumptions are not covered, they suggest the employment of t test, instead.

In this study, in order to check the assumptions of parametric tests, the normality of

the groups was analyzed. The pretest and posttest scores of the control and treatment groups

were tested through Shapiro-Wilk, Kolmogorov-Simirnov tests, Skewness and Kurtosis

scores and normality plots. According to the Shapiro-Wilk and Kolmogorov-Simirnov tests,

there was a statistical difference between the scores of the participants within groups in

pretest and posttest analyses so the normality assumption could not be covered for any of the

scales. However, George and Mallery (2003) have suggested that a kurtosis value between -1

and +1 can be accepted as excellent while the values between -2 and +2 can be regarded as acceptable. Based on this interpretation, the results of the pretest and posttest scores of the scales showed normal distribution except the treatment group's posttest scores for the evaluation, inference and explanation.

After checking the normality of variances through Levene's test, Independent Samples T-Test was used in order to analyze the posttest results of the control and treatment groups. For the comparison of evaluation, inference and explanation scales' posttest results across the groups, Mann Whitney U Test was conducted. The effectiveness of CT instruction in treatment group was analyzed through Paired Samples T-Test by comparing the pretest and posttest scores of the participants. However, nonparametric Wilcoxon Signed Rank Test was employed for the analysis of evaluation, inference and explanation scales. All the statistical analyses were made through SPSS program Package 24.

Table 18

*Normality Checks through Skewness and Kurtosis Values*

|  |  | Scales | N | Skewness | Kurtosis |
|---|---|---|---|---|---|
| **Pretest** | Control Group | Analysis | 31 | -1.139 | .571 |
|  |  | Evaluation | 31 | -.514 | -1.077 |
|  |  | Inference | 31 | -1.162 | -.164 |
|  |  | Interpretation | 31 | -.064 | -.311 |
|  |  | Explanation | 31 | -.231 | -.109 |
|  | Treatment Group | Analysis | 31 | -.125 | -.066 |
|  |  | Evaluation | 31 | -.654 | .656 |
|  |  | Inference | 31 | -1.344 | 1.148 |
|  |  | Interpretation | 31 | -1.158 | 1.749 |
|  |  | Explanation | 31 | -1.294 | 1.667 |

| | | | | | |
|---|---|---|---|---|---|
| | Control | Analysis | 31 | .845 | .524 |
| | Group | Evaluation | 31 | -.944 | -.509 |
| | | Inference | 31 | -1.614 | 1.886 |
| | | Interpretation | 31 | -.071 | .158 |
| **Posttest** | | Explanation | 31 | -.891 | .534 |
| | Treatment | Analysis | 31 | -1.379 | -.109 |
| | Group | **Evaluation** | **31** | **-3.589** | **14.187** |
| | | **Inference** | **31** | **-2.448** | **5.549** |
| | | Interpretation | 31 | -.805 | 1.080 |
| | | **Explanation** | **31** | **-1.332** | **2.032** |

*3.6.2.2. Analysis of the observation checklist.* There are three observation checklists for each treatment group participant filled in the beginning, middle and end of the process. The gain of students on certain behavior was revealed according to their performance in specific activities and the existence was expressed in two ways: "yes" and "no". Descriptive statistics were used for the evaluation of observation checklists. The number of occurrences was counted for each set; so that the increase or decrease of the frequency of skills observed in participants between the three observation intervals was analyzed accordingly.

**3.6.3. Qualitative data analysis.** The qualitative data of the present study was analyzed through content analysis based on the specific coding of relevant input. The interviews, research journal and student reflective diaries were examined carefully for the detailed explanation of the research questions.

*3.6.3.1. Analysis of the interviews.* Because of the time constraints and in order to make participants more comfortable to answer the questions freely, interview questions were asked to be answered through pen and paper interview forms. So the data was written in the interview forms by 20 volunteer participants from the treatment group. The number of

occurrences for the relevant codes were counted and revealed through descriptive analyses, frequency and percentage calculations. A coding method called "template organizing style" was used to analyze the written data through which the researcher begins the coding with a template of codes (Crabtree & Miller, 1999). The content analysis was employed under certain themes directed by the interview questions. These themes were CT embedded English course design, training activities, materials, teacher attitude, assessment ways and the transferability of learners' CT to their future learning experiences in English and in other disciplines. In order to keep the emergent nature of qualitative data to some extent, student answers were allowed to create subcategories under each theme.

*3.6.3.2. Analysis of the research journal.* For the analysis of research journals, researcher employed a content analysis. Open coding method was used and the categories were not predetermined (Strauss & Corbin, 1998). Starting with the reading and organizing the journal data, the researcher grouped the codes around the themes which formed broad categories afterwards.

*3.6.3.3. Analysis of the student diaries.* In order to analyze the data acquired through 15 students' learning diaries, the researcher did a content analysis. As the data was the diary notes written down by the participants freely, the categories for the analysis were not determined beforehand. Thus, open coding method which is a part of grounded theory of Strauss and Corbin (1998) was chosen. Open-coding gives the researchers flexibility of moving from the raw data to the general themes and theories which is not clear at the beginning of the analysis. For the present study, starting with the organization and active reading of all the diaries, the data was coded around some themes which turned into broad categories serving to the aim of the research.

**3.7. Instruction Procedure**

Considering the nature of techniques applied during the study, this research can be classified to have an infusion approach in that CT training has been infused in the subject matter content of English course (Ennis, 1989). The control group students took the Standard English curriculum provided by MoNE while the treatment group students were exposed to a CT embedded English curriculum offered by the researcher. Along with the activities and texts in the course book given by the state, treatment group students dealt with extra materials and activities prepared by the researcher in order to improve their CT and English.

Table 19

*A Comparison between the Standard English Course Design of the Control Group and the CT Embedded English Course Design of the*

*Treatment Group*

|  | **Standard English Course Design (Control Group)** | **CT Embedded English Course Design (Treatment Group)** |
|---|---|---|
| **Curriculum** | Standard English Course Curriculum identified by MoNE | CT Embedded English Course Curriculum developed by the researcher |
| **Learning objectives** | Students are expected to gain proficiency in the four skills (reading, writing, speaking, listening) of English. | Along with the proficiency in the four skills of English, students are expected to improve their CT abilities which they can use while learning and using English |
| **Activities** | The activities offered by the textbook are conducted. These practices aim the development of four skills but mostly reading and writing. | The activities prepared by the researcher for the improvement of CT along with English proficiency are conducted besides the activities in the book. These practices aim the development of CT skills (interpretation, analysis, inference, explanation, evaluation, and self-regulation |

| | | |
|---|---|---|
| **Assignments** | The assignments are in the form of writing and speaking text formations based on generally fictitious situations giving little place for students' own selections or preferences. | Students are assigned to get involved into real experiences with the language such as doing researches, preparing regular portfolios for which they can select and organize the content, keeping learning diaries, collaborating for the problem solving and group presentations and etc. |
| **Materials** | The general English textbook defined and given by MoNE is the main course material. | The general English textbook defined and given by MoNE is one of the course materials such as authentic texts from real life in the form of videos, short films, documentaries, songs, news, podcasts, articles, magazines, newspapers, brochures, letters, mails, posters, TV guides, menus and etc. |
| **Assessment** | The assessment is product-oriented, periodic, more competitive and objective in nature. The learners are assessed through the institutional exams twice in a term. These exams measure the language skills of the learners. | The assessment is process-oriented, continuous, self-corrective and collaborative in nature. Performance-based assessment sessions, individual learning diaries, authentic portfolios, self-, peer- and group evaluation forms, discussions and etc are conducted together with two institutional exams which cover the examination of CT and English in a context. |

Students in both treatment and control groups had 4 hours of English every week; 2 classes on every Tuesday and Wednesday. Treatment group had 2 classes in the morning on Tuesdays and 2 classes in the afternoon on Wednesdays whereas the control group had 2 classes in the afternoon on Tuesdays and 2 classes in the morning on Wednesdays. So, the variables affected by the time of the course were close to each other for both groups. The attendance was an obligation for the students in national education system so the participants took part in almost all classes. There were 18 weeks in the first term of 2018-2019 Education Year and the training lasted 15 weeks. First week and last week of the term were excluded from the training time and they were reserved for the administration of the pre and posttests, interviews, greeting and closure. Moreover, there was an unpredicted snow break for a week which didn't cause any significant changes in the planning of the instruction apart from one-week deferment of the planned curriculum practices.

The researcher was the instructor of the course and the only English teacher of both control and treatment groups. For the improvement of CT in ELT classroom, Infusion Approach (Ennis, 1989) was adopted. The infused lesson plans were prepared based on the integration of MoNE's basic objectives for the development of four language skills in English course and requirements of six core CT skills (interpretation, analysis, inference, explanation, evaluation, and self-regulation) described in Delphi Report by various researchers (Facione, 1990) (Appendix 8). Although they have similar expectations for the cognitive development of the learners in CT, 35 cognitive and affective thinking strategies defined by Paul et al. (1989) were included in the development of lesson plans because of their affective components and direct emphasis on the development of some dispositional elements. There was a compilation of objectives, activities, assessment ways, CT skills and cognitive and affective thinking strategies covered in the lesson plans of the treatment group whereas there

were only course objectives, activities and assessment ways determined by standard English

curriculum in the control group's lesson plans (see Table 20).

For the remodeled English course design applied in treatment group, the researcher

adopted, adapted and designed the language learning activities boosted through a CT aim and

emphasis. The methods, techniques, activities and assignment were required to motivate

students to think critically in every step. As the participants were elementary and pre-

intermediate learners who tried to *learn thinking in English*, the aim was to help them *learn*

*thinking critically in English*. In CT focused English course, assessment was not an aim of the

instruction process. The researcher did not take the institutional exams as the basic focus of

the course and shared the grading of the success to a variety of sections. The learners were

exposed to self-, peer- and group- assessment practices through a variety of assignments. For

the self-assessment, students were asked to think about and evaluate deeply their learning

experience, keep learning diaries including their opinions, feelings, frustrations and

motivation sources throughout their instruction process, prepare portfolios, complete self-

assessment forms at the end of productive activities and make comments verbally on their

ideas and works. In order to evaluate their peers or groups for collaborative activities, they

completed peer and group evaluation forms, discussed on each other's performances and

wrote short evaluation paragraphs.

In the first week of the term, the Critical Thinking Skills Scales Set (CTSS) was

administered as a pretest in both control and treatment groups. In order to create a sense of

familiarization and awareness in the participants of the treatment group, they were provided

with greeting and ice breaking activities which promoted active and skillful thinking.

Furthermore, they were given a brief introduction on the necessity of qualified thought

through various sample situations from real life. They were informed about the nature of

training they would be exposed to and the assignments they would be required to complete

like portfolios and learning diaries. Data collection process was administered concurrently with the instruction. The observation checklists were completed three times (beginning, middle, end) during the whole term for each one of the students and the researcher kept the research journal regularly for each class sessions based on her observations from the beginning to the end of the process. The last week of the term was a closure and revision week in which the students were supposed to revise and analyze the English language learning and CT processes throughout the term. The posttest and the interview were conducted in the last week of the term. Students were asked to hand in their portfolio assignments and student diaries.

Table 20

*The Time Table of the Data Collection and Instruction Processes of the Study*

| Weeks | Quantitative data collection process | Qualitative data collection process | | Instruction Process |
|---|---|---|---|---|
| Week 1 (17.09.2018-21.09.2018) | Administration of the pretest (CTSS) | Research Journal | | Greeting and introduction to CT |
| Week 2 | Observation checklist | Research Journal | Student Diaries | Unit 1 |
| Week 3 | Observation checklist | Research Journal | Student Diaries | Unit 1 |
| Week 4 | Observation checklist | Research Journal | Student Diaries | Unit 1 |
| Week 5 | | Research Journal | Student Diaries | Unit 2 |
| Week 6 | | Research Journal | Student Diaries | Unit 2 |
| Week 7 | | Research Journal | Student Diaries | Unit 2 |
| Week 8 | Observation checklist | Research Journal | Student Diaries | Unit 3 |
| Week 9 | Observation checklist | Research Journal | Student Diaries | Unit 3 |
| Week 10 | Observation checklist | Research Journal | Student Diaries | Unit 3 |
| Week 11 | | Research Journal | Student Diaries | Unit 4 |

| Week 12 | | Research Journal | Student Diaries | | Unit 4 |
|---|---|---|---|---|---|
| **Week 13** | | Research Journal | Student Diaries | | Unit 4 |
| **Week 14** | Observation checklist | Research Journal | Student Diaries | | Unit 5 |
| **Week 15** | **SNOW BREAK** | **SNOW BREAK** | **SNOW BREAK** | **SNOW BREAK** | **SNOW BREAK** |
| **Week 16** | Observation checklist | Research Journal | Student Diaries | | Unit 5 |
| **Week 17** | Observation checklist | Research Journal | Student Diaries | | Unit 5 |
| **Week 18** | Administration of the | Research Journal | | Interviews | Closure and revision activities |
| (14.01.2019-18.01.2019) | posttest (CTSS) | | | | |

**Chapter 4**

**Results**

**4.1. Introduction**

This chapter describes the findings of the present study for each research question created to achieve the aim of the study. In order to check the effectiveness of an instruction process which was based on the integration of critical thinking (CT) skills in English language teaching (ELT) curriculum, a mixed method research was conducted. Throughout the whole study, a variety of data collection methods were used. CT Skills Scales Set (CTSS) developed by Demir (2006) and the observation checklist were analyzed through descriptive statistical analysis while the research journal, student diaries and structured interviews were investigated through content analysis and qualitative coding methods.

**4.2. The Results for the First Research Question**

The first research question investigated the CT level of the participants in both control and treatment groups before and after the training: *"What are the critical thinking levels of the participants in the control and treatment groups before and after the instruction process?"*

For the analysis of the CT level of the learners in pre- and posttests, the mean and standard deviation of the scores were calculated through descriptive statistics in SPSS. Even though the question numbers differentiated from Demir's original CTSS (2006) based on the facto analysis results; his method was adopted for the interpretation of the participants having low, medium or high level of CT. The wrong answers were scored as "0" while the right answers got "1". The lowest and highest scores which the learners could get from the scales ("0-6" from the analysis, "0-8" from the evaluation, "0-6" from the inference, "0-10" from the interpretation and "0-8" from the explanation) were measured. The intervals between the lowest and highest scores were divided into three sections to define the low, medium or high levels of CT. According to this rule, "0.00-2.00" score range was "low", "2.01-4.00" score

range was "medium" and "4.01-6.00" score range was "high" for the analysis and inference scales; "0.00-2.66" score range was "low", "2.67-5.34" score range was "medium" and "5.35-8.00" score range was "high" for the evaluation and explanation scales and "0.00-3.33" score range was "low", "3.34-6.67" score range was "medium" and "6.68-10.00" score range was "high" for the interpretation subscale. Based on these specifications for coding, the learners' scores were graded as "low level of CT -1", "medium level of CT -2" and "high level of CT -3" and the arithmetic mean of the codes were calculated for the total portrait of the groups. For the analysis of the total scores, "1.00-1.66" score range was low, "1.67-2.33" score range was medium and "2.34-3.00" score range was interpreted as high level of CT.

Table 21

*CT Level of the Participants in the Beginning and End of the Instruction Process*

| Scales | Groups | Pretest | | | | Posttest | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N | $\overline{X}$ | SD | CT level | N | $\overline{X}$ | SD | CT level |
| **Analysis** | Control | 31 | 2.83 | 0.37 | high | 31 | 2.87 | 0.34 | high |
| | Treatment | 31 | 2.38 | 0.50 | high | 31 | 3 | 0 | high |
| **Evaluation** | Control | 31 | 2.67 | 0.47 | high | 31 | 2.67 | 0.54 | high |
| | Treatment | 31 | 2.77 | 0.50 | high | 31 | 2.90 | 0.40 | high |
| **Inference** | Control | 31 | 2.80 | 0.40 | high | 31 | 2.77 | 0.56 | high |
| | Treatment | 31 | 2.58 | 0.61 | high | 31 | 2.90 | 0.30 | high |
| **Interpretation** | Control | 31 | 2.77 | 0.43 | high | 31 | 2.93 | 0.25 | high |
| | Treatment | 31 | 2.70 | 0.53 | high | 31 | 2.93 | 0.25 | high |
| **Explanation** | Control | 31 | 2.35 | 0.61 | high | 31 | 2.58 | 0.62 | high |
| | Treatment | 31 | 2.51 | 0.62 | high | 31 | 2.87 | 0.34 | high |

The statistical analysis of the participants' scores in pre- and posttests showed that both the control and treatment group participants had a high level of CT in the beginning and end of the instruction process (See Table 21).

## 4.3. The Results for the Second Research Question

The second research question aimed to check the equality of the groups in terms of their CT level by analyzing the pretest scores of the CTSS. It asks "*Is there a significant difference between the pretest scores of the treatment group who has the English training integrated with critical thinking and control group who has the Standard English Curriculum?*"

After checking the normality assumptions and Levene's Test for the equality of variances, an Independent Samples T-Test was conducted. The results of the T-Test showed that the pretest scores for the scales were not significantly different between the control and treatment groups (p>0.001) except from the analysis subscale (p<0.001) (Table 22).

Table 22

*The Independent Samples T-Test Results of CT Levels Pretest*

|  | Groups | *N* | *M* | *SD* | *df* | *t* | *p* |
|---|---|---|---|---|---|---|---|
| Analysis | Control | 31 | 5.35 | .83 | 60 | 4.304 | .00 |
|  | Treatment | 31 | 4.35 | .98 |  |  |  |
| Evaluation | Control | 31 | 6.35 | 1.68 | 60 | .419 | .677 |
|  | Treatment | 31 | 6.19 | 1.32 |  |  |  |
| Inference | Control | 31 | 5.16 | 1.15 | 60 | 1.087 | .281 |
|  | Treatment | 31 | 4.80 | 1.40 |  |  |  |
| Interpretation | Control | 31 | 7.54 | 1.28 | 60 | .329 | .743 |
|  | Treatment | 31 | 7.41 | 1.76 |  |  |  |
| Explanation | Control | 31 | 5.29 | 1.71 | 60 | -.882 | .381 |

| | | | | |
|---|---|---|---|---|
| Treatment | 31 | 5.67 | 1.73 | |

## 4.4. The Results for the Third Research Question

The third research question tried to reveal the effect of time on the learners' level of CT by comparing the pre- and posttest scores of the control group who did not take an English instruction enhanced with CT. It aimed to understand whether the learners could develop their CT in their standard language learning process even if there wouldn't be a special CT focus. The third research question is "*Is there a significant difference between the pretest and posttest scores of the control group who gets the Standard English Curriculum?*"

First, the normality of the scores was checked by evaluating the skewness and kurtosis values for the control group's tests (see Table 18). Having guaranteed the normality of the scores, the researcher employed Paired Samples T-Test for the analysis of significance between the pretest and posttest scores of the control group for all the CTSS scales.

Table 23

*Results of the Paired Sample T-Test Between the Pre- and Posttest Scores of Control Group*

| CTS Scales | | *N* | *M* | *SD* | *df* | *t* | *p* |
|---|---|---|---|---|---|---|---|
| Analysis | Pretest | 31 | 5.35 | .83 | 30 | -.329 | .745 |
| | Posttest | 31 | 5.41 | .71 | | | |
| Evaluation | Pretest | 31 | 6.35 | 1.68 | 30 | -1.052 | .301 |
| | Posttest | 31 | 6.61 | 1.68 | | | |
| Inference | Pretest | 31 | 5.16 | 1.15 | 30 | .00 | 1.00 |
| | Posttest | 31 | 5.16 | 1.18 | | | |
| Interpretation | Pretest | 31 | 7.54 | 1.28 | 30 | -1.187 | .245 |
| | Posttest | 31 | 7.90 | 1.16 | | | |
| Explanation | Pretest | 31 | 5.29 | 1.71 | 30 | -1.914 | .065 |

| | | | |
|---|---|---|---|
| Posttest | 31 | 5.90 | 1.83 |

Paired Samples T-Test showed that there wasn't any statistical significance between the pre- and posttest scores in the critical thinking scales of the control group (p>0.001) (Table 23).

## 4.5. The Results for the Fourth Research Question

The fourth research question of the study is about the effectiveness of an English instruction integrated with CT skills. It questions the applicability of CT training in an ELT classroom for the improvement of CT skills of the students. "*Is there a significant difference between the post test scores of the treatment group learners who get the English training integrated with CT and the control group learners who get the Standard English Curriculum?*"

In the end of the normality analysis of the pretest and posttest scores of the CTSS (Demir, 2006), the skewness and kurtosis values revealed that pretest scores of the control and treatment group for all the scales and posttest scores of control group for all the scales were normally distributed and the null hypothesis of normality was accepted (see Table 18). However, the skewness and kurtosis values of the treatment group's posttest scores for the evaluation, inference and explanation scales were not within the acceptable intervals (George & Mallery, 2003). In order to answer the fourth research question, the pre- and posttest scores gained from the CT Skills Scales (Demir, 2006) were analyzed through parametric Independent Samples T-Test for the analysis and interpretation scales which showed a normal distribution and through nonparametric Mann-Whitney U Test for the treatment group's posttest evaluation, inference and explanation scales which didn't meet the normality assumptions.

Levene's Test for Equality of the posttest results of control and treatment groups didn't show any statistical difference (p>0.000); so, the assumption for the equality of

variances was met. The descriptive statistics showed that for the analysis and interpretation scales, the treatment group students who had a training to think critically outperformed the control group who did not. According to the Independent Samples T-Test, there was a statistical significance between the posttest results of the treatment and control groups across the analysis (p=.021; p <.05) and interpretation (p=.030; p <.05) scales (Table 24). Effect size of the significance was medium across the analysis (d=0.61; d>.50) scale and medium across the interpretation (d=0.56; d>.50) scale (Cohen, 1988).

Table 24

*The Independent Samples T-Test Results of CT Levels Posttest*

| Scales | Groups | N | M | SD | df | t | p | d |
|---|---|---|---|---|---|---|---|---|
| Analysis | Control | 31 | 5.41 | .71 | 60 | -2.363 | .021 | .61 |
| | Treatment | 31 | 5.77 | .42 | | | | |
| Interpretation | Control | 31 | 7.90 | 1.16 | 60 | -2.227 | .030 | .56 |
| | Treatment | 31 | 8.51 | .99 | | | | |

The normality assumptions were not met for the treatment group's posttest results of evaluation, inference and explanation scales. So, the nonparametric Mann-Whitney U Test was conducted to compare the posttest results of the control and treatment groups for these scales (Table 25). According to the analysis, the treatment group significantly outperformed the control group in evaluation (U=304; p <.05), inference (U=344; p <.05) and explanation (U=320; p <.05) scales. The effect size of these significance levels was medium for the evaluation (r=0.63; d>.50), medium for the inference (r=0.52; r>.50) and medium for the explanation (r=0.64; r>.50) scales (Cohen, 1988).

Table 25

*The Mann-Whitney U Test Results of CT Levels Posttest*

| Scales | Groups | N | M | SD | Z | p | r |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Evaluation | Control | 31 | 6.61 | 1.68 | -2.876 | .004 | .63 |
| | Treatment | 31 | 7.54 | 1.23 | | | |
| Inference | Control | 31 | 5.16 | 1.18 | -2.294 | .022 | .52 |
| | Treatment | 31 | 5.67 | .74 | | | |
| Explanation | Control | 31 | 5.90 | 1.83 | -2.318 | .020 | .64 |
| | Treatment | 31 | 6.90 | 1.22 | | | |

## 4.6. The Results for the Fifth Research Question

The main aim of the fifth research question was to understand the effectiveness of CT focused English course design regarding the data in the CTSS, observation checklists, research journal, student diaries and interviews. The question is *"Is an English course design enhanced with critical thinking skills effective for EFL learners to improve their critical thinking in ELT classrooms?"*

**4.6.1. Is there a significant difference between the pretest and posttest scores of the treatment group?.** This section aimed to analyze the effectiveness of the course design by comparing the pre- and posttest scores of the treatment group which was exposed to the English training enhanced through CT.

Before analyzing the significance level between the test results, normality analyses were made through Kolmogorov-Simirnov and Shapiro-Wilk tests and skewness and kurtosis values. The posttest scores of the treatment group showed a normal distribution for the analysis and interpretation scales, on the other hand the scores of evaluation, inference and explanation scales were not normally distributed within the group (see Table 18). Based on the normality condition, Paired Samples T-Test was used for the comparison of the pretest and posttest scores of analysis and interpretation scales while a nonparametric equivalent, Wilcoxon Signed Rank Test was conducted for the significance analysis of the evaluation, inference and explanation pre- and posttests.

Table 26

*Results of the Paired Sample T-Test between the Pre- and Posttest Scores of*

*Treatment Group*

| Scales | | N | M | SD | df | t | p | d |
|---|---|---|---|---|---|---|---|---|
| Analysis | Pretest | 31 | 4.35 | .98 | 30 | -7.064 | .000 | 1.4 |
| | Posttest | 31 | 5.77 | .42 | | | | |
| Interpretation | Pretest | 31 | 7.41 | 1.76 | 30 | -4.442 | .000 | .77 |
| | Posttest | 31 | 8.51 | .99 | | | | |

Paired Samples T-Test for the analysis and interpretation scales indicated that there

was a statistical difference between the pre- and posttest scores of the treatment group for

both analysis (p=.000; p <.05) and interpretation (p=.000; p <.05) scales (Table 26). The

effect size of the significance between the groups was high for the analysis (d=1.4; d>.80) and

high for the interpretation (d=0.77; d>.80) scales (Cohen, 1988).

Table 27

*Results of the Wilcoxon Signed Ranks Test between the Pre- and Posttest Scores of*

*Treatment Group*

| Scales | | N | M | SD | Z | p | r |
|---|---|---|---|---|---|---|---|
| Evaluation | Pretest | 31 | 6.19 | 1.32 | -3.636 | .000 | 1.06 |
| | Posttest | 31 | 7.54 | 1.23 | | | |
| Inference | Pretest | 31 | 4.80 | 1.40 | -3.240 | .001 | .78 |
| | Posttest | 31 | 5.67 | .74 | | | |
| Explanation | Pretest | 31 | 5.67 | 1.73 | -3.590 | .000 | .82 |
| | Posttest | 31 | 6.90 | 1.22 | | | |

According to the output of Wilcoxon Signed Rank Test, there was a significant

difference between the pre- and posttest results of the treatment group for the evaluation (z=-

3,636; p<.05), inference (z=-3,240; p<.05) and explanation (z=-3,590; p<.05) scales (See

Table 27). The effect size of the significance levels was high for the evaluation (r=1.06;

r>.80), medium for the inference (r=0.78; r>.50) and high for the explanation (r=0.82; r>.80)

scales (Cohen, 1988). Based on the statistical analysis of the measurements made before and

after the training, it can be said that the participants of the treatment group improved their CT

skills at the end of and English course through CT emphasis.

**4.6.2. Is there an increase in the frequencies of the critical thinking behaviors**

**defined in the observation checklist?** This section reveals the answers for the second

dimension of the fifth research question by analyzing the observation checklists. Students

were observed carefully in a special quantitative observation way. They were observed in

three groups to focus more closely on each individual separately in a crowded classroom

(n=31). The checklist on CT behaviors was filled in for each student in the beginning, middle

and end of the instruction process.

The aim of the checklist was to observe the total frequency of each subskill by

calculating the total number of occurrences for the behaviors under each subskill for each

observation interval and to reveal the percentage of final gains of the subskills. There were 31

participants observed in treatment group and there were differing numbers of behaviors which

were expected to be gained by the participants. For example, there were four behaviors under

categorization subgroup and if all the students showed the expected behaviors, the number of

occurrences would be 124 (31x4). A descriptive analysis covered revealing the total number

of occurrences for each subskill and calculating the percentage which compared total final

gains of the treatment group participants with the total expected gains for each subgroup.

In the beginning of the instruction, the most observed subskill was the

"*categorization*" (10.48%). "*Analyzing arguments*" (6.45%) was the second mostly observed

subskill and "*clarifying meaning*" (5.37%) was the third commonly observed subskill.

According to the final percentage of the gains of behaviors, *"categorization"* (77.41%) and *"presenting arguments"* (77.41%) were revealed as the most observed subskills while *"justifying procedures"* (9.67%) was the least observed subskill. *"Analyzing arguments"* (60.21%) was the second mostly observed skill and followed by *"clarifying meaning"* (54.83%), *"conjecturing alternatives"* (53.22%), *"assessing arguments"* (52.41%) and *"decoding significance"* (51.61%) (See Table 28).

The descriptive analysis showed that there has been an increase in the number of occurrences for each behavior related to the subskills of the six CT skills. Looking for the total gain percentages of CT skills, "interpretation" (62.90%) was observed as the most improved skill whereas "self-regulation" (33.54%) improved least among other skills.

Table 28

*The Descriptive Statistics of the Observation Checklist*

| CT Skills | | CT Subskills | Maximum total gain score | Initial percentage of the gains | Observed gain scores | | | Final percentage of gains |
|---|---|---|---|---|---|---|---|---|
| | | | | | **In the beginning** | **In the middle** | **In the end** | |
| INTERPRETATION | | Categorization | 124 | 10.48% | 13 | 51 | 96 | 77.41% |
| | | Decoding Significance | 93 | 0% | 0 | 13 | 48 | 51.61% |
| | | Clarifying Meaning | 93 | 5.37% | 5 | 23 | 51 | 54.83% |
| | | **TOTAL** | 210 | 5.80% | 18 | 87 | 195 | 62.90% |
| ANALYSIS | | Examining ideas | 124 | 1.61% | 2 | 6 | 51 | 41.12% |
| | | Detecting arguments | 31 | 0% | 0 | 0 | 10 | 32.25% |
| | | Analyzing arguments | 93 | 6.45% | 6 | 11 | 56 | 60.21% |
| | | **TOTAL** | 248 | 3.22% | 8 | 17 | 117 | 47.17% |
| EVALUATION | | Assessing claims | 62 | 0% | 0 | 2 | 27 | 43.54% |
| | | Assessing arguments | 124 | 2.41% | 3 | 12 | 65 | 52.41% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **TOTAL** | 186 | 1.61% | 3 | 14 | 92 | 49.46% |
| INFERENCE | | | Querying evidence | 31 | 0% | 0 | 2 | 10 | 32.25% |
| | | | Conjecturing alternatives | 62 | 3.22% | 2 | 14 | 33 | 53.22% |
| | | | Drawing conclusions | 62 | 0% | 0 | 0 | 18 | 29.03% |
| | | | **TOTAL** | 155 | 1.29% | 2 | 16 | 61 | 39.35% |
| EXPLANATIO | N | | Stating results | 31 | 0% | 0 | 0 | 11 | 35.48% |
| | | | Justifying procedures | 31 | 0% | 0 | 0 | 3 | 9.67% |
| | | | Presenting arguments | 31 | 3.22% | 1 | 11 | 24 | 77.41% |
| | | | **TOTAL** | 93 | 1.07% | 1 | 11 | 38 | 40.86% |
| SELF- | REGULA | TION | Self-examination | 124 | 0% | 0 | 6 | 42 | 33.87% |
| | | | Self- correction | 31 | 0% | 0 | 0 | 10 | 32.25% |
| | | | **TOTAL** | 155 | 0% | 0 | 6 | 52 | 33.54% |

**4.6.3. What are the perceptions of the participants in treatment group on the effectiveness of CT embedded English course design?** In order to reveal the participants' perceptions on the effectiveness of the CT focused English course design, qualitative data was analyzed through content analysis. According to the careful descriptive analysis of the research journal, student diaries and interviews, the most emerging themes were "supportive", "fun" and "effective" which formed the rationale for the confirmation of the main research hypothesis "CT embedded English course design is possible and effective for the improvement of CT skills of the EFL learners in ELT classrooms".

*4.6.3.1. The results for the interviews.* Beginning with the translation of the participants' utterances in English, the qualitative analysis process continued through careful reading and eliciting of the interview data. Multiple codes were created from the meaning units taken from the student answers and those codes went into certain groups to form the basic framework for the analysis of interview data. The reasons for the effectiveness of the CT focused English course design were revealed from the utterances of the 20 participants in the treatment group. The frequency and percentage of the codes were calculated and shown below and in the tables. Example meaning units from the student answers were written in italic writing type and the identities of the students who owned the utterances were given in parenthesis (e.g. S1).

Most of the students (90%) expressed their content with the improvements in their CT and language proficiency: *"We did not experience this kind of English course before. It was really effective."* (S11). Many of them thought that their success in English course was better than the previous year (90%) and expressed this through the phrases like *"the best term"* and *"the best course ever"*. A great number of the students (70%) wished that the training would continue in the second term and *"wished that it would be a permanent type of English course"* (S9). Some students (25%) considered that even if they had better grades in English course,

they couldn't speak the language fluently before the training. With the help of *"fun"* and *"original"* CT training they believed that they could create better utterances on their thoughts and they could gain more self-confidence in expressing their opinions on the issues: "*I felt proud of myself at the end of every English course when I could speak English and do the activities.*" (S15).

Interrelated to each other very closely, the general content with lesson design covers the content with activities, too. Most of the students (90%) thought that the activities were "fun". Even if they expressed their criticisms and negative comments on some issues, a group of students (15%) emphasized that the activities were "fun" despite their difficulty. The most preferred type of activities were the speaking activities through which the students could make analyses, evaluations, inferences, interpretations, explanations, guesses, descriptions and express their ideas freely. Getting involved in interactive speaking activities, learners thought that they "*went beyond their course book*" (S2) and compensate for the missing part in their course books: "*real communication*" (S2). The students (20%) also emphasized the "creative" side of the activities through which they could produce real solutions to real problems, can create original works by using their CT skills.

Putting the instructor at an important place, the participants (70%) emphasized that their success in CT and English was closely affected by the teacher's attitude. Most of the participants (90%), even if they didn't think they were successful in the course, expressed their pleasure with the positive attitudes of the teacher with the expressions like "*Teacher doesn't get angry when we make mistakes*" (S11) or "*Teacher gently leads us to find out our mistakes while speaking on something*" (S2).

Assessment had a different nature for the students who were used to learn English to be successful in the exams. Through CT emphasis, the students were supposed to use the assessment as an ongoing process together with the learning experience and as a tool for the

quick feedback on their progress. Students thought that the self-assessment practices were "supportive" (65%) and "educative" (30%) in that these practices raised their awareness and improved their knowledge on CT and language skills: *I learn new words while writing diaries*" (S7), "*I recognized that I didn't understand the previous course's subject and I could study at home*" (S14). "Motivating" was another code for the assessment subcategory that affects the success of students in CT and language learning. Students (40%) expressed that they felt motivated after the group and peer evaluation sessions, exams and teacher's feedback.

Table 29

*The Qualitative Coding for the Strong Parts of CT Embedded English Instruction According to the Participants*

| Category | Subcategory | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| **The strong parts of CT embedded English course design** | Lesson design | Original | "This term was different from previous terms." (S12) | 90% (n=18) |
| | | Supportive | "I felt happy and proud of myself at the end of every English course when I could speak English and do the activities". (S15) | 55% (n=11) |
| | | Effective | "English courses had been always insufficient before however this term was very efficient and entertaining" (S2). | 65% (n=13) |
| | | Motivating | "English course increases my desire to learn English"(S2) | 35% (n=7) |
| | Activities | Fun | "We had the best English courses this term; all the activities were very fun." (S1) | 90% (n=18) |
| | | Complementary | "There isn't enough speaking activity in the book." (S5) | 20% (n=4) |
| | | Creative | "In English course, we can do many things; write poems, prepare presentations, keep portfolios, etc." (S20) | 25% (n=5) |

| | | | |
|---|---|---|---|
| Teacher attitude | Positive | "Teacher doesn't get angry when we make mistakes." (S11) | 90% (n=18) |
| | Fair | "She listens to every one of us." (S11) | 40% (n=8) |
| | Supportive | "Teacher always tries to makes us think and speak in English by asking questions." (S1) | 80% (n=16) |
| Assessment | Motivating | "The teacher doesn't interrupt my speaking; she tells what I should do after the class" (S3). "I feel successful  after the exams and peer evaluation activities" (S15) | 40% (n=8) |
| | Collaborative | "In group assessment activities, we can speak English with our friends." (S20) | 30% (n=6) |
| | Self-supportive | "Keeping diaries after classes makes me think about what I have learnt."(S8) (S20) | 65% (n=13) |
| | Educative | "I learn new words while in group assessment sessions."(S3) | 30% (n=6) |

Besides the positive views on the effectiveness of course design, there was a group of students who stated their criticisms on the lesson design, activities, teacher attitude and assessment ways, too (See Table 30). Some of the students (25%) admitted that they had a low performance in CT and English course because of the fact that they were *"not familiar with the new kind of activities"* (S12) and they "*had difficulties in understanding the vocabulary and topics of the texts"* (S8). They also stated that they *"felt stressed and embarrassed while speaking with their friends"* (S6).

A few of the students (10%) questioned the classroom management of the teacher and they thought that teacher should have stopped the noise in the classroom: "*My friends talk too much in classes*" (S5), "*Teacher sometimes let the noise in the classroom, I don't like it*" (S10). Moreover, frequent use of L2 by the instructor caused stress among some of the students (20%): "*Teacher speaks only in English so I sometimes couldn't understand her"* (S6), "*I don't understand the teacher*" (S7).

Some students (25%) expressed their discontent with the activities: "*We should have solved more tests to get prepared for high school entrance exam*" (S6), "*The activities were very hard and boring"* (S8), "*I did these activities for the first time in my life*." (S12), "*We could have played more fun games, like competitions between groups*." (S8).

According to a number of students the new assessment ways were "unfamiliar" (5%), "demotivating" (10%), "difficult" (10%) and "daunting" (10%): *"We used to have multiple choice questions in the exams; I wish we had those in this term"* (S6), "*I get embarrassed when my friends evaluate me and find my mistakes*" (S10), "*I feel stressed before the exams*" (S4), "*Completing assessment forms were hard if we don't know the words in the table*" (S5), *"The exams were very hard*" (S8), *"I got bored to keep diaries after each English course"* (S2).

Table 30

*The Qualitative Content Analysis Results for the Weak Parts of CT Embedded English Instruction According to the Participants*

| Category | Subcategory | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| **The weak parts of CT embedded English course design** | Lesson design | Unfamiliarity | "I didn't experience an English course like this before" (S10) | 20% (n=4) |
| | | Difficulty | "English course was fun but very hard." (S6) | 25% (n=5) |
| | | Ineffective | "I had a lower success this term." (S12), "I can't think critically" (S12). | 25% (n=5) |
| | | Demotivating | "I can't speak English as my friends do; so I don't like English course" (S7), "I felt stressed and embarrassed while speaking with my friends." (S6) | 30% (n=6) |
| | Activities | Unfamiliarity Lack of experience | "It was the first time that I have experienced this kind of activities." (S12) | 20% (n=4) |

| | Lack of confidence | "I felt stressed and embarrassed while speaking with my friends." (S6) | 15% (n=3) |
|---|---|---|---|
| | Lack of vocabulary | "I had difficulties in understanding the vocabulary and topics of the texts" (S8) | 25% (n=5) |
| | Difficulty | "The activities were very hard and boring" (S10) | 25% (n=5) |
| | Boring | "We could have played more entertaining games, like competitions between groups." (S8) | 10% (n=2) |
| Teacher attitude | Bad classroom management | "Teacher sometimes let the noise in the classroom, I don't like it" (S10). | 10% (n=2) |
| | Frequent use of L2 | "Teacher speaks only in English so I sometimes couldn't understand her" (S6) | 20% (n=5) |
| Assessment | Unfamiliar | "We used to have multiple choice questions in the exams; I wish we had those in this term." (S6) | 5% (n=1) |
| | Demotivating | "I get embarrassed when my friends evaluate me and find my mistakes" (S10), "I feel stressed before the exams" (S4) | 10% (n=2) |
| | Difficult | "The exams were very hard" (S8) | 10% (n=2) |

| Daunting | "I got bored to keep diaries after each English course" (S2) | 10% (n=2) |

*4.6.3.2. The results for the student diaries.* All the participants in treatment group were asked to write learning diaries throughout the whole instruction process. There were 31 students in the treatment group; however, the number of students who handed in their learning diaries was 15. In order to keep the participants' anonymity and to give them the freedom of writing about their ideas without a hesitation to be judged by the teacher, the students were not asked to write their names on the diaries. So, the "student 15 (S15)" mentioned in diary results is not the same participant with "the student 15 (S15)" in interview data analysis. Furthermore, the researcher gave the flexibility of choosing the language to the students in order to gather the ideas of the students sincerely without the negative intervention of the lack of vocabulary and language structures. Thus, the students chose the language they wanted from time to time; there were both English and Turkish sentences. The utterances were analyzed through content analysis. Some utterances were coded under more than one code because of their complex and comprehensive nature. Example meaning units were shown in italic writing type and the students who expressed those were given in parenthesis and through their number identities (i.e. S1). The frequency of codes was calculated and they were shown as "n=15".

The content analysis of the data in student diaries yielded various results. Emerging codes were categorized under four groups: affective components, linguistic components, cognitive components and metacognitive components. The codes for the affective group were "entertaining activities" (n=15), "motivating teacher" (n=10) and "having fun time" (n=15). A great number of participants wrote about their happiness and content about the teacher (n=10), CT activities (n=15) and English course (n=15). The most common occurrence (n=15) in student journals was the concept of "*fun*". Students stated that they were exposed to "*fun activities*" and they "*had lots of fun*" throughout the courses especially during the speaking,

listening and video watching sessions: "*Time is like a turtle. Going very slowly... But English lessons are funny and fast*" (S15).

The second group, "linguistic components", consisted of six codes: "different ways to learn language structures" (n=4), "new learning methods for the vocabulary" (n=3), "improvement in listening comprehension" (n=8), "improvement in speaking the language" (n=7), "authentic reading passages" (n=5), "writing texts similar to real life" (n=4): "*I'm good at drawing concept maps*" (S9), "*The teacher likes my story (news story for Sabiha Gökçen)*" (S2), "*Last year we solved tests on past tense, this year, we wrote many stories and biographies.*" (S15), "*I like the reading topic today. It is about rhinos and illegal hunting*" (S10), "*We made a debate today. My group supported TV.*" (S7). The most preferred types of activities were watching videos and commenting on them, guessing games, jigsaw activities including speaking and listening skills, problem solving tasks respectively.

There were five codes under the third group "cognitive components": "thinking in English" (n=4), "making evaluations" (n=5), "categorization of the vocabulary" (n=5), "making descriptions" (n=7), "finding similarities and differences" (n=8), "problem solving" (n=7): "*I can make sentences when I can remember the word and make a sentence in my mind before speaking*" (S15), "*We guessed the people's appearance and personality by listening to their voice. Interesting and fun*" (S12), "*I drew a concept map on football…*" (S8), "*We made comments on documentary today. We made a debate on the reasons of drought and deforestation*" (S4).

The codes for the "metacognitive components" were "self-assessment" (n=10), "self-regulative studies" (n=8) and "collaboration" (n=7): "*I feel proud of myself after speaking activities.*" (S14) "*I will work today's topics because I couldn't participate in the activities well today.*" (S13). "*Presentations improve our relationship with our friends by sharing our responsibilities.*" (S2).

Table 31

*Reasons for Success of the CT Embedded English Instruction According to the Student Diaries*

| Category | Group | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| Reasons for success | Affective components | Entertaining activities | "We played a fun game today. We tried to guess the people our friend asked by analyzing and comparing the characteristics of a group of people." (S5) | (n=15) |
| | | Motivating teacher | "Teacher encourages our thinking on issues and expressing our thoughts. That's a great thing." (S10) | (n=10) |
| | | Having fun time | "Time was like a turtle. Going very slowly. But English lessons are funny and fast." (S15) | (n=15) |
| | Linguistic components | Different ways to learn language structures | "Teacher handed in copies and we found the past tense structures in the paragraphs. I can understand easily better than last year." (S6) | (n=4) |
| | | New learning methods for the | "I learnt how to prepare concept maps well; I can easily categorize the words." (S14) | (n=3) |

| | | | |
|---|---|---|---|
| | recall of vocabulary | | |
| | Improvement in listening comprehension | "I could understand the listening texts this week." (S7) | (n=8) |
| | Improvement in speaking the language | "I am better in speaking activities; I couldn't speak English last year." (S14) | (n=7) |
| | Authentic reading passages | "We read the biography of Sabiha Gökçen and wrote a news story today. I think English lesson turned to Social lesson. Different and funny." (S15) | (n=5) |
| | Writing texts similar to real life | "We wrote a TV guide for our own channel today. It was an interesting and fun activity." (S12) | (n=4) |
| Cognitive components | Thinking in English | "I can speak English by thinking simple sentences in English." (S15) | (n=4) |
| | Making evaluations | "I think commenting on videos is fun." (S11) | (n=5) |

| | Categorization of the vocabulary | "I can easily categorize the animals according to their characteristics." (S14) | (n=5) |
|---|---|---|---|
| | Making descriptions | "Guessing games are great." (S12) | (n=7) |
| | Finding similarities and differences | "I liked the topic today; introducing animals are easier than talking about the past." (S12) | (n=8) |
| | Problem solving | "We watched a documentary about elephants today. We discussed what we can do to protect them. It was a fun lesson" (S10) | (n=7) |
| Metacognitive components | Self-examination | "I'm developing myself. I think in a different way now" (S13) | (n=10) |
| | Self-correction | "I forget to give homework today. Be more careful!"(S13) | (n=8) |
| | Collaboration | "My friends and I prepared a presentation on Star Wars. It was a good work." (S4) | (n=7) |

There were also negative thoughts, criticisms, cause of failures and disappointments in students' reflective diaries. The reasons for the students' failure in CT embedded language learning activities were categorized into four groups: affective components, linguistic components, cognitive components and metacognitive components. There were four codes under the affective components: "speaking anxiety" (n=4), "stressful thinking activities" (n=3), "frustration about the failures" (n=8) and "assessment anxiety" (n=6). They underlined the feeling of "stress" during the speaking tasks, group works and assessment sessions. According to the journal data, the classes containing debates and role plays caused a sense of anxiety in some of the students. Another common feeling among the participants was frustration. Some students expressed their discontent and frustration with the phrases "*don't understand the teacher*" (S12), "*hate group works*" (S14). The students generally expressed their anxiety or frustration about the unfamiliar and difficult methods and activities: "*I can't participate in guessing, analyzing and speaking activities because my English is not good*" (S3), "*We didn't do these kinds of activities before. Very difficult!*" (S13), "*We had an exam today. There was a listening part and we didn't do it in the exams before. I felt anxious.*" (S11).

The second group, "linguistic components" included three codes: "lack of vocabulary" (n=5), "difficulty in making sentences" (n=5), "difficulty in understanding L2" (n=2). The participants complained about their lack of necessary knowledge, vocabulary and familiarization with CT activities. They thought that they had difficulties during the CT tasks because of the fact that they sometimes "*don't know*" (S4) or "*cannot remember*" (S6) the words. Though there were strong supporters of them, according to the general consensus, the least effective activities which the students associated with their "lack of vocabulary" and "cause of stress" were unstructured speaking activities and group presentations: "*I hate group*

*presentations. One student makes the presentation. Others get the point, too"* (S14), *"I feel*

*anxious to speak in the classroom because I don't know many words"* (S5).

There were two codes, "difficulty in focusing to thinking" (n=2) and "difficulty in

understanding the aim" (n=3) under the cognitive components: "I wish we solve more tests, I

don't like speaking and writing in the exams" (S12), "*I couldn't get involved in problem*

*solving activity today. I don't have any idea about the sports and I don't like sports*" (S11).

The metacognitive components were "hardship in adaptation to new situations" (n=3),

"problems in collaboration" (n=2) and "self-regulative studies" (n=2). *"I can't focus on the*

*lessons"* (S10), "*I don't like group discussions*" (S14), *"I don't like keeping portfolios*" (S9).

Table 32

*Reasons for Failure of the CT Embedded English Instruction According to the Student Diaries*

| Category | Group | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| Reasons for failure | Affective components | Speaking anxiety | "I feel anxious while speaking English." (S5) | (n=4) |
| | | Stressful thinking activities | "CT activities are too hard and complex; so I can't participate in the activities in case I will make mistakes." (S14) | (n=3) |
| | | Frustration about the failures | "We did group discussion on the protection of wild animals today; there was too much noise in classroom, I couldn't hear my friends even if they sat next to me." (S13) | (n=8) |
| | | Assessment anxiety | "I felt nervous today because we had a quiz." (S2) | (n=6) |
| | Linguistic components | Lack of vocabulary | "I can't speak English because I don't know the words." (S5) | (n=5) |
| | | Difficulty in making sentences | "I can't make sentences." (S17) | (n=5) |
| | | Difficulty in understanding L2 | "I sometimes don't understand the teacher, she speaks too fast." (S14) | (n=2) |

| Cognitive components | Difficulty in focusing on thinking | "I can't think critically because I can't think in English and don't know the words" (S13). | (n=2) |
|---|---|---|---|
| | Difficulty in understanding the aim | "I don't know why we make these different activities too much." (S8) | (n=3) |
| Metacognitive components | Hardship in adaptation to new situations | "She (teacher) used different activities. I didn't experience them before." | (n=3) |
| | Problems in collaboration | "I hate group works. They don't help my development." | (n=2) |
| | Self-regulative studies | "I don't like taking notes in lessons." | (n=2) |

**4.6.4. What are the perceptions of the researcher on the effectiveness of CT embedded English course design?** The researcher was the instructor of the course and the only English teacher for the participants throughout the term.  In order to take comprehensive notes on the important details for each instruction session, a research journal was kept regularly by the researcher from the beginning to the end of CT embedded English instruction process. Direct excerpts from the research journal are shown in italic type of writing.

According to the research journal, the most common feelings and attitudes of the students were "fun", "stress", "anxiety", "intimidation", "reluctance", "hesitation" and "self-confidence" towards the whole instruction process, activities employed, materials used and assessment types applied. The students felt overwhelmed by *"the unfamiliar activities and assignments which required a conscious participation of them"* with all their language and CT skills in the beginning of the instruction process. The researcher expressed repeatedly in the journal that the students couldn't get the aim of the course because they did not fully comprehend the meaning and requirements of CT. They wanted to continue with their previous learning habits and to stay in their comfort zone of the activities, assignments, behaviors and assessment methods. For example; the students enjoyed video-based activities, but "*they couldn't get the educational purpose of watching them. They thought that watching videos was just for fun and they weren't so willing to do the follow up activities*". However, when the students got used to the aim and routine of the course, they became more eager to change their perceptions and to get involved in the process actively.

During the courses, the biggest difficulty was defined as the students' reluctance to express their ideas on ongoing issues by speaking the target language. *"They feel intimidated while making interpretations, analyses, and evaluations"* which are parts of CT. They tended to prefer the easy way to make analyses even if it wasn't their real idea. For example, while dealing with an evaluation activity in which the students were required to describe the events

from various points of views by focusing on contrasting themes, some students used the words "good", "bad, or "fun", "boring". The same situation was observed in sentence level for role-pays and dialogues in which "*the students couldn't get away from the memorized chunks and have difficulty in creating real-like improvised utterances*". They also found it very hard to get in different personalities easily in role plays. "*They couldn't get the idea easily and they tended to act and talk according to their actual personalities*". Moreover, debate sessions which "*caused stress among students*" were problematic in that the students wanted to use their memorized, pre-structured or copied utterances rather than proceed on what their friends said in the beginning of the process. "*The students' lack of vocabulary and necessary knowledge of language structures*" were observed as the hindering effects for their CT performance. Having observed the debates' effect on the stress level of the students, the researcher offered easier peer speaking activities which make students more comfortable and successful with the beginner level of CT. "*Jigsaw activities were effective and fun ways to make students think and speak in collaboration with their peers*". The researcher wrote that it was a right decision to postpone the application of debates to the later times.

The learners regarded "*the grammar and vocabulary as the main aim and focus of the English course before*"; because, in order to achieve their accuracy in language they got used to be offered multiple-choice tests, true-false and fill-in-blank activities previously. During the remodeled courses, the perception of grammar and vocabulary changed for the learners. They were still introduced as important components, however, rather than being the main focus, they were regarded as the tools to achieve main focus which was being able to think critically in English for the present case. Most of the time, the learners were provided with indirect instruction of grammar and vocabulary integrated into the CT based four language skills tasks. They were supposed to read and listen critically, analyze the sample texts for the similar application in their own productive activities, detect the structures, list and name the

rules for the formation of those structures, express their opinions on the rules' effect on meaning, and etc. The students were commonly observed to *"conceive those kinds of grammar activities as daunting and unnecessary"*. They complained about the difficulty of these activities and they wanted to write long pages of rules given by the instructor. However, as a part of the CT improvement routine, *"new type of grammar activities gave students the feeling of success to discover and discuss the rules with their friends in order to use them in future comprehension and production experiences"*. For the acquisition of specific vocabulary related to a unit, basic categorizations and concept mapping of the words were common activities. The researcher observed that *"the students don't have problems with categorization activities. They could easily adapt to make classifications; however, they have difficulties in creating concept maps. It was a new and different activity for them"*. However, towards the end of the process, the researcher noted that the students could create excellent concept maps.

Students were frequently exposed to inference activities in which they were supposed to guess the certain characteristics of people, place and time related to the given pictures, texts, sounds or other kinds of information. The researcher noted that if the students were provided with concrete data like sounds or pictures, they could easily guess and list their opinions however they had difficulties in analyzing the abstract information. *"The students couldn't progress in dealing with abstract concepts"*; however, *"they became great analysts who can make successful guesses and analyses on the texts, find the similarities and differences between two concepts, objects, people, animals or phenomena"*. *"They got used to open their minds to possibilities"*.

*"*S*tudents felt stressed"* while dealing with problem solving activities in the beginning. Together with their decreased level of stress, *"they improved much in problem solving activities in time"*. However, the improvement was not the same for every student. Some students could only develop many ideas regarding specific issues. *"The quantity of the ideas*

*did not show the quality of them because some of the ideas were memorized, copied or just said to be said*". On the other hand, some students could brainstorm on real, smart and innovative solutions related to the issues triggered by the topics provided by both the researcher and the course book. They were provided with authentic issues requiring students' active thinking on their characteristics, causes, consequences, solutions. As a production activity, students were sometimes asked to cooperate with their friends to prepare brochures or posters related to the problem, its causes, consequences and solutions. However, *"some students who could easily create effective ideas were not able to produce appropriate and colorful work*" which has shown their "*lack of creativity*".

"*Self-regulation was a neglected area in the participants' previous learning experiences*". Although the students were successful in many disciplines together with their English course according to their formal assessment results, "*they couldn't decide on their own learning objectives and they couldn't take the responsibility for their own learning process*". As the CT embedded English instruction gives importance to the self-regulation skills of the learners, self-regulative studies were asked to be completed by the students like self-assessment forms, self-evaluation discussions, keeping portfolios and learning diaries. "*Self-assessment forms were useful ways to show students what they would be required to have for the development of CT and English*". Self- evaluation discussions were peer-discussion activities through which the students made evaluations for their own and their friend's work. "*It was a stressful activity for some of the students*" however the students comprehended the aim and importance of self and peer evaluation for the improvement of CT and "*they got used to it in time*". Keeping learning diaries was a daunting an intimidating activity for nearly all the students in the beginning of the process because it required students to use English. As the main aims of the learning diaries are to reveal the students' perceptions on the instruction process, to observe the improvements and changes in those perceptions and

to make deeper analyses on the effectiveness of CT instruction, students were given freedom to write their diaries in their preferred language. Some of the students wrote just in English, some of them used both English and Turkish and some of them wrote their diaries just in Turkish. Through the interventions, "*some students got used to write their diaries regularly in time*" while some of them remained the same and they did not hand out their diaries.

Redesigned assessment methods were completely new for the students as they covered a variety of fields to be graded along with the institutional exams. "*The unfamiliarity of self, peer and group assessments caused a feeling of anxiety among students.*" "*The complexity of the assignments like diaries, portfolios, presentations, projects and etc. frightened the students*" and some of the students tended to ignore them. Furthermore, the students did not have institutional exams covering CT focused questions directed to the evaluation of four skills, reading, writing, listening and speaking before. "*They felt intimidated before the exams however after they had attended the exams their anxiety gave its place to the feelings of success and self confidence.*"

Table 33

*Reasons for Success of the CT Embedded English Instruction According to the Research Journal*

| Category | Group | Codes | Meaning unit |
|---|---|---|---|
| | | *Students'* | |
| **Reasons for Success** | Affective Components | Enjoyment | "The debate session was quite fun and fruitful; most of the students laughed and got involved in a way." |
| | | Self-confidence | "… after they had attended the exams their anxiety gave its place to the feelings of success and self-confidence." |
| | | Motivation | "Students are getting used to the course design; they feel more motivated to participate in original activities." |
| | Linguistic Components | Recognizing the rules of grammar by themselves | "New type of grammar activities gave students the feeling of success to discover and discuss the rules with their friends in order to use them in future comprehension and production experiences." |
| | | Familiarity with critical reading activities | "Students are more successful in analyzing the reading text and doing text-based activities; because they are familiar with those kinds of activities from previous learning experiences." |

| | | |
|---|---|---|
| Cognitive Components | Development in speaking skill | "The speaking skill of the learners is the most developed language skill with the inclusion of critical thinking." |
| | Success in categorization | "… the students don't have problems with categorization activities. They could easily adapt to make classifications …" |
| | Success in finding similarities and differences | "They became great analysts who can make successful guesses and analyses on the texts, find the similarities and differences between two concepts, objects, people, animals or phenomena." |
| | Development in problem solving | "…they improved much in problem solving activities in time." |
| | Development in critical thinking | "They got used to open their minds to possibilities." |
| Metacognitive Components | Self-regulation | "Students are getting used to write their diaries, and give more details in time." |
| | Self-awareness | "Self-assessment forms were useful ways to show students what they would be required to have for the development of CT and English." |
| | Self-correction | "Some students were great today detecting their mistakes in the leaflets they prepared about an endangered animal." |

Table 34

*Observed Difficulties for the CT Embedded English Instruction According to the Research Journal*

| Category | Group | Codes | Meaning unit |
|---|---|---|---|
| | | *Students' …* | |
| **Difficulty areas** | Affective Components | Desire to stay in their comfort zone | "… (Students) conceived those kinds of grammar activities as daunting and unnecessary; they expressed that they would prefer tests." |
| | | Reluctance to express their ideas | "Some students hesitated to express their ideas because they are afraid of being judged by their classmates." |
| | | Intimidation against CT activities | "They feel intimidated while making interpretations, analyses, and evaluations." |
| | | Anxiety against unfamiliar assignments | "Students felt anxious while completing the peer evaluation form" |
| | | Anxiety against the assessment type | "They felt intimidated before the exams" |
| | Linguistic Components | Lack of the knowledge of language structures | "Students don't know how to make sentences; they know the grammar rules but they cannot use them to combine the words." |

| | Lack of vocabulary | "Some students cannot get involved into debate sessions actively or they use a number of memorized utterances because of their lack of vocabulary." |
|---|---|---|
| | Too much focus on grammar | "Students tend to associate the language learning with grammar rules mastery and solving tests on these rules." |
| | Lack of proficiency in speaking skill | "Some students cannot speak English accurately and fluently; they cannot even make sentences because of their lack of vocabulary, language structures, compensation strategies and etc." |
| Cognitive Components | Difficulty in understanding the aim of the activities | "…they couldn't get the educational purpose of watching them (videos). They thought that watching videos was just for fun and they weren't so willing to do the follow up activities." |
| | Lack of creativity | "…some students who could easily create effective ideas were not able to produce appropriate and colorful work." |
| | Failure in expressing ideas on current issues | "Students don't aware of the outer world and they cannot make comments on controversial issues without a trigger like a documentary and news." |
| | Failure to keep communication | "Some students had difficulty in continuing on their friends' assumptions; they talked to each other but it wasn't an interaction." |

| | Desire to keep the familiar experience | "Some students frequently demand solving tests instead of conducting text-based grammar practices. They don't regard those as grammar activities which, they think, are the effective way of learning the language." |
|---|---|---|
| | Difficulty in participating new and unfamiliar activities | "…they have difficulties in creating concept maps. It was a new and different activity for them." |
| | Difficulty in thinking from different perspectives | "Students had extreme difficulties in six-thinking hat today in evaluating an issue from various point of views." |
| | Difficulty in analyzing the abstract information | "The students couldn't progress in dealing with abstract concepts"; |
| Metacognitive Components | Lack of self-awareness | "They couldn't decide on their own learning objectives …" |
| | Lack of self-regulation | "… they couldn't take the responsibility for their own learning process". |
| | Lack of self-correction | "Some students have difficulties in identifying their false inferences in problem solving activity …" |

**4.7. The Results for the Sixth Research Question**

The sixth research question tried to reveal the opinions of the treatment group students in their interview data by answering the following items: "What are the perceptions of the treatment group participants on (a) the activities applied during the CT embedded English instruction process, (b) the materials used for the application of the CT embedded English activities, (c) the instructor's attitude towards them during the instruction process, (d) the assessment ways preferred for the analysis and evaluation of students' improvement, (e) the transferability of the course gains across their future learning experiences in English and other disciplines?

**4.7.1. "What are the perceptions of the treatment group participants on the activities applied during the CT embedded English instruction process?.** CT activities were commonly labeled with positive words, "fun" (90%), "original", "educative", "interesting" "effective", "collaborative" (40%), "creative" (25%), "complementary" (20%) and "supportive", by most of the students (90%) (See Table 35). Stating that they have "*experienced these kinds of activities for the first time*" (S20), most of the students (90%) expressed their content with CT embedded English learning activities through the "fun" expressions. They said "*the activities are fun*" (S4) and they "*had great time during the activities*" (S19). The positive environment created by the fun activities motivated students to participate willingly in collaborative tasks. They (40%) favored the collaborative tasks which enhanced the whole class identity among students in that they had to communicate with their peers to complete the tasks even if they didn't get on well with each other. They conveyed that "*the activities make everyone friends in classroom*" (S15), "*create a good harmony among students*" (S17) and they "*learnt to get on well with friends through activities*" (S5). Some of the students (20%) emphasized the inefficacy and insufficiency of the activities for the integration of CT with the quotes "*I noticed that the book is not enough to learn how to*

*think in English*" (S15), "*With the activities teacher provided, we weren't limited with the course book*" (S13). They claimed that the CT activities were "effective" and "supportive" in order to "*boost (our) curiosity, develop (our) thinking and speak English effectively*" (S15) supported the view that *"assignments push the limits of (our) thinking and creativity"* (S1).

Table 35

*The Perceptions of the Treatment Group Participants on the Activities Applied during the CT Embedded English Instruction Process*

| Category | Group | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| The students' perceptions on the effectiveness of the activities | The activities were effective | Educative | "With CT activities, we could understand English very well." (S5) | 70% (n=13) |
| | | Fun | "Apart from the activities in the book, the activities that the teacher offered were more fun and motivating for us to think creatively and critically." (S2) | 90% (n=18) |
| | | Original | "We did not experience this term's activities in previous language classes; they were different and fun."(S11) (S12) | 65% (n=13) |
| | | Creative | "The activities pushed our brains to pass their limits of creativity and they improved our creativity." (S1) | 25% (n=5) |
| | | Collaborative | "Thanks to CT activities, we could work with our friends in harmony even if we didn't get on well with them."(S5) | 40% (n=8) |

| | Interactive | "For CT activities, we had to speak English with our friends as if we talked to tourists; this was hard but very fun."(S15) | 25% (n=5) |
|---|---|---|---|
| | Complementary | "There isn't enough speaking activity in the book." (S5) | 20% (n=4) |
| The activities | Cause of stress | "I felt nervous while speaking English in the classroom." (S10) | 30% (n=6) |
| were not | Difficult | "The activities were hard but fun" (S6) | 40% (n=8) |
| effective | Boring | "I think the subjects are boring; we could have played more entertaining games" (S8) | 10% (n=2) |

CT tasks which required "speaking" and "writing" skills were labeled as "fun" (75%) and "effective" (70%) by most of the learners. Being original (65%) practices for them, critical speaking and writing activities were effective to "*make better sentences*" (S13), "*express themselves*" (S11), "*talk about interesting topics*" (S2), "*solve real problems*" (S1), "*participate in real-like interaction situations*" (S15), and "*improve vocabulary*" (S3). Debates were the most preferred activities (50%) by the students because they offered opportunities to students for *"expressing themselves and justifying their ideas"* (S11) (Table 36). Students also admitted the efficacy of debates on their curiosity: "*Debates both make us curious about speaking English and improve our thinking abilities*" (S15). Problem solving activities were the second most frequent answer for the effective CT activities question: *"Finding solutions to a real-life problem requires CT"* (S1). A group of students (30%) talked about the usefulness of concept maps to organize their thinking pattern and *"steer their thoughts into the right direction*" (S13). Guessing about different texts (pictures, videos, written and audio texts), jigsaw, role plays and keeping portfolios had the same frequency of preference (30%) as the effective activities for the improvement of CT skills in English course. They were followed by the group presentations, making relations between the concepts, complete the missing parts in a text (25%) and one student (5%) expressed her preference as detecting true and false assumptions together with other activities.

Table 36

*Activities which Improve the CT Skills Most According to the Participants*

| Activities | Frequency/ Percentage | Activities | Frequency/ Percentage |
|---|---|---|---|
| Debates | 50% | Keeping portfolios | 30% |
| Problem solving activities | 35% | Group presentations | 25% |

| | | | |
|---|---|---|---|
| Guessing activities about different texts (pictures, videos, written and audio texts) | 30% | Making relations between concepts | 25% |
| Jigsaw activities | 30% | Complete the missing parts in a text | 25% |
| Concept mapping | 30% | Keeping learning diaries | 35% |
| Role plays | 30% | True-false assumptions | 5% |

Some of the learners (30%) asserted that they felt "*nervous*" while speaking with their friends to the solution of the issues and making group presentations among students. The difficulty of the activities had a hindering effect (40%) for some of the students because of their lack of vocabulary (25%), lack of similar experience (20%) or lack of confidence (15%) while it doesn't affect the some students' (10%) sense of fun anyway: "*The activities were hard but fun*" (S6). However, there were students (10%) who found the activities boring: "*We can play more games and watch more videos instead of these activities*" (S12). Two students (10%) also recommended that it would be better if the instructor had created opportunities to communicate with native speakers of English. Even though most of the students thought like "*all the activities were effective, I couldn't name a least effective activity*" (S15), some students did not favor for a group of activities (See Table 37). The most frequent activity for the least effective activities category was the group presentations (20%). Some students expressed that group presentations had no effect in improving their CT in that "*the work load was not shared in group*" (S10), "*group presentations require close interaction with friends outside the classroom*" (S16) and "*someone speaks and the others just stand by her/him*" (S20). Group presentations were followed by guessing about the text (15%), keeping learning

diaries (10%), and debates (5%), problem solving (5%), keeping portfolios (5%), jigsaw (5%), and true-false assumptions (5%).

Table 37

*Activities which Improve the CT Skills Least According to the Participants*

| Activities | Frequency/ Percentage | Activities | Frequency/ Percentage |
|---|---|---|---|
| Debates | 5% | Keeping portfolios | 5% |
| Problem solving activities | 5% | Group presentations | 20% |
| Guessing activities about different texts (pictures, videos, written and audio texts) | 15% | Making relations between concepts | 0% |
| Jigsaw activities | 5% | Complete the missing parts in a text | 0% |
| Concept mapping | 0% | Keeping learning diaries | 10% |
| Role plays | 0% | True-false assumptions | 5% |

**4.7.2. "What are the perceptions of the treatment group participants on the materials used for the application of the CT embedded English learning activities?.** The participants didn't give fruitful answers evaluating the effectiveness of the materials used during the instruction process. The codes revealed for the effectiveness of the materials are "authentic", "supportive, "fun", "new" and "complementary" (See Table 38). A group of students (20%) emphasized the effectiveness of the authenticity of the materials with the utterances "*Teacher brought newspaper texts, movie excerpts, brochures, problem situations from real world; it was so fun*" (S5), "*We read about the life of George Lucas and wrote a news story for Sabiha Gökçen. The topics were interesting*" (S17), "*Teacher showed us real texts from real places like videos, news; these helped us to learn new words and speak*

*English to solve the problems*" (S15), "*I did not read real news in English before; I will always watch the videos and films in English from now on*" (S11). These authentic materials supported their level of success according to some students (15%): *"I noticed that the book is not enough to learn how to think in English"* (S15), "*Using the graphics, we made good comments on the problems of wild life"* (S1). "Fun" is the most frequent code (40%) for the materials category because most of the students thought that "*the videos were fun*" (S6). Some materials were "new" for the students and some of them (20%) emphasized the effectiveness of those new kinds of materials for their critical thought: "*I did not read real news in English before*" (S11), "*I saw wild life donation website for the first time*" (S3). One of the students (5%) emphasized the insufficiency of the materials for the integration of CT: "*I noticed that the book is not enough to learn how to think in English*" (S15).

Some of the students (10%) pointed out the importance of topic diversity in motivating them to the course and training while one of the students related his failure in CT to the fact that "*there is a problem with the topics of the texts*" (S8). A group of students (15%) also thought that the materials were problematic in that they were very difficult. For example a student underlined that "*the vocabulary in reading texts was hard*" (S7) while a student emphasized the pace of speech was very fast for her to understand: *"I couldn't understand the listening texts*" (S6).

Table 38

*The Perceptions of the Treatment Group Participants on the Materials Used for the Application of the CT Embedded English Activities*

| Category | Group | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| The students' perceptions on the effectiveness of the materials | Materials were effective | Authentic | "Teacher brought newspaper texts, movie excerpts, brochures, problem situations from real world" (S5). | 20% (n=4) |
| | | Supportive | "Teacher showed us real texts from real places like videos, news; these helped us to learn new words and speak English to solve the problems" (S15). | 15% (n=3) |
| | | Fun | "The video clips, the news and the problems were entertaining" (S11). | 40% (n=8) |
| | | New | "I did not read real news in English before; I will always watch the videos and films in English from now on" (S11). | 20% (n=4) |
| | | Complementary | "I noticed that the book is not enough to learn how to think in English" (S15). | 5% (n=1) |
| | Materials were not effective | Difficult | "I couldn't understand the listening texts" (S6). | 15% (n=3) |
| | | Boring | "I got bored during the critical reading activities. I think there is a problem with the topics of the texts" (S8). | 5% (n=1) |

**4.7.3. What are the perceptions of the treatment group participants on the instructor's attitude towards them during the instruction process?.** Most of the students specified the effect of "positive" (90%) and "supportive" (80%) teacher attitudes on their CT success*: "Teacher was so kind and supportive"* (S4), *"She supported us expressing our ideas"* (S19), "*Teacher doesn't get angry when we make mistakes"* (S11), *"She did not correct all the mistakes of the students while speaking"* (S5), "*she gave opportunities them to detect their own errors*" (S11), *"Teacher gently leads us to find out our mistakes while speaking on something*" (S2). A group of students (25%) expressed that she was fun. Some students (40%) pointed out that the teacher enhanced a successful classroom management through the enhancement of collaborative works and lesson participation: "*Teacher always tries to makes us think and speak in English by asking questions*" (S1). The students underlined the importance of the instructor's fairness: "She *motivated each student's participation separately without making any discrimination" (S17)*, "*She listens to every one of us." * (S11). They considered that the teacher's professional qualifications were important: "*Teacher was so smart and successful; she thought in a different way and taught us to do so*" (S15), "*Teacher speaks English all the time*" (S2).

There were negative comments on teacher attitudes like "the frequent use of L2" and "poor classroom management". Some students thought that they failed because they couldn't understand the teacher as "*she speaks only in English*" (S6). Furthermore, some students got disturbed from the noise in the classroom and they thought they the teacher should have stopped the noise in the classroom: "*She sometimes let the noise in the classroom"* (S10).

Table 39

*The Perceptions of the Treatment Group Participants on the Instructor's Attitude towards Them during the Instruction Process*

| Category | Group | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| The students' perceptions on the effectivenes s of the teacher's attitudes | Positive teacher attitudes | Positive | "Teacher was so kind and supportive." (S4) | 90% (n=18) |
| | | Supportive | "Teacher didn't correct us immediately or she didn't blame us for our mistakes; she gently led us and we could understand our own mistakes" (S1). | 80% (n=16) |
| | | Fun | "Teacher is fun and behaves us very well" (S17). | 25% (n=5) |
| | | Successful in classroom management | "Teacher observed each of us closely and made every one of us speak" (S18). | 40% (n=8) |
| | | Fair | "Teacher didn't let the grouping of us in the classroom; she behaved equally to all students and made everyone friends" (S5). | 40% (n=8) |
| | | Professionally qualified | "Teacher was so smart and successful; she thought in a different way and taught us to do so" (S15) | 20% (n=4) |

| Negative teacher attitudes | Bad classroom management | "Teacher sometimes let the noise in the classroom, I don't like it" (S10). | 10% (n=2) |
| | Frequent use of L2 | "Teacher speaks only in English so I couldn't understand her" (S6) | 20% (n=5) |

**4.7.4. What are the perceptions of the treatment group participants on the assessment ways preferred for the evaluation of students' improvement?.** After the analysis of interview data on the effectiveness of the type of assessment ways used by the researcher, there were two groups of views with a variety of codes (See Table 40). Emerging codes for the first group "assessment ways were effective" were "motivating" (40%), "collaborative" (30%), "supportive" (65%) and "educative" (30%) while there were "unfamiliar" (5%), "demotivating" (10%), "difficult" (10%) and "daunting" (10%) codes for the second group "assessment ways were ineffective". Nearly half of the students (40%) thought that the assessment ways used through the instruction process motivated them: "*Teacher doesn't get angry when we make mistakes*" (S11), *"She did not correct all the mistakes of the students while speaking"* (S5), *"Teacher gently leads us to find out our mistakes while speaking on something*" (S2). A group of students (40%) asserted that the assessment ways were supportive: "*Teachers gave opportunities us to detect our own errors*" (S11). They also underlined the "educative" part of the assessment ways: "*I learn new words while writing diaries*" (S7). Some students stressed that the assessment ways were collaborative and they thought that "*the group and peer assessment activities help learners to get on well with each other*" (S5).

Table 40

*The Perceptions of the Treatment Group Participants on the Assessment Ways Preferred for the Evaluation of Students' Improvement*

| Category | Group | Codes | Example Meaning Unit (S=Student) | Frequency |
|---|---|---|---|---|
| The students' perceptions on the effectiveness of assessment ways | Assessment ways were effective | Motivating | "The teacher doesn't interrupt my speaking; she tells what I should do after the class" (S3). "I feel successful .after the exams and peer evaluation activities" (S15) | 40% (n=8) |
| | | Collaborative | "In group assessment activities, we can speak English with our friends." (S20) | 30% (n=6) |
| | | Supportive | "Keeping diaries after classes makes me think about what I have learnt." (S8) | 65% (n=13) |
| | | Educative | "I learn new words while in group assessment sessions."(S3) | 30% (n=6) |
| | Assessment ways were not effective | Unfamiliar | "We used to have multiple choice questions in the exams; I wish we had those in this term." (S6) | 5% (n=1) |
| | | Demotivating | "I get embarrassed when my friends evaluate me and find my mistakes" (S10), "I feel stressed before the exams" (S4) | 10% (n=2) |
| | | Difficult | "The exams were very hard" (S8) | 10% (n=2) |
| | | Daunting | "I got bored to keep diaries after each English course" (S2) | 10% (n=2) |

Some students expressed their negative comments on the assessment ways preferred during the instruction process. A student (5%) emphasized the unfamiliarity of the assessment types: *"We used to have multiple choice questions in the exams; I wish we had those in this term"* (S6). Assessment was a source of stress which demotivated two of the students: "*I get embarrassed when my friends evaluate me and find my mistakes*" (S10), "*I feel stressed before the exams*" (S4). Furthermore, for some students the assessment ways were difficult and daunting to participate in and continue regularly: "*Completing assessment forms were hard if we don't know the words in the table*" (S5), "*I don't like keeping diaries every week much*" (S4).

More than half of students (55%) favored peer and group evaluation activities and they said *"evaluating our friends' performance required critical and careful listening" (S15).* They also talked about the peer and group evaluation sessions improved their speaking (30%) skill and vocabulary (10%). Some students (45%) emphasized the supportive nature of the group and peer evaluation activities and they expressed that participating in peer and group assessment sessions, they "*learned new words from each other*" (S3) and "*speak with each other more fluently*" (S11). A group of students (25%) also thought that peer and group evaluation "*improves the good harmony between students*" (S5) by "*boosting good relationships*" (S3) of the students.

Self- assessment was frequently used during the instruction process in the form of self-evaluation forms, learning diaries and discussion sessions between students on each other's work. A quite number of students (65%) were in favor of the notion that *"self-evaluation was very useful in that I noticed my own strong and weak sides during the classes"* (S15). Some students expressed their content with keeping learning diaries (35%) for the improvement of their CT and English success: "*I learn new words while writing diaries*" (S7), "*We write different things everyday and we learn new word while writing these in our*

*diaries*" (S8), *"I learn how to make sentences in English through writing my diary regularly"* (S13), "*I can think on what I have learnt and what I couldn't learn. So I can create my own learning ways in order to compensate for what I couldn't learn"* (S1). Some students (30%) also talked about the effectiveness of keeping portfolios: *"I keep my portfolio to organize my work and research; it is really useful for me"* (S15).

Table 41

*The Perceptions of the Participants about Self, Peer and Group Assessment*

| Group | Type of assessment | Frequency/ Percentage | Group | Type of assessment | Frequency/ Percentage |
|---|---|---|---|---|---|
| These types | Self- | (n=13) | These types | Self- | (n=1) |
| of | assessment | 65% | of | assessment | 5% |
| assessments | Peer | (n=11) | assessments | Peer | (n=3) |
| were | assessment | 55% | were | assessment | 15% |
| effective | Group | (n=11) | ineffective | Group | (n=1) |
| | assessment | 55% | | assessment | 5% |

**4.7.5. What are the perceptions of the treatment group participants on the transferability of the course gains across their future learning experiences in English and other disciplines?** Students talked about the effectiveness of CT inclusion into the ELT curriculum and they supported the view that they would improve their CT by continuing to use it in their future language learning experiences (See Table 42). They thought that keeping learning diaries (30%), keeping portfolios (20%), group presentations (20%), concept mapping of the new learnt vocabulary and issues (40%), analyzing texts critically (10%), making guesses about the written, audio or visual texts (30%), debates (25%), watching videos and films in English (20%) were among the activities that they would use to improve their CT in English.

Table 42

*The Perceptions of Participants about the Transferability of CT Activities to Their*

*Future Learning Experiences in English*

| Activities | Frequency/ Percentage | Activities | Frequency/ Percentage |
|---|---|---|---|
| concept mapping of the new learnt vocabulary and issues | 40% | keeping portfolios | 20% |
| keeping learning diaries | 30% | watching videos and films in English | 20% |
| making guesses about the written, audio or visual texts | 30% | group presentations | 20% |
| debates | 25% | analyzing texts critically | 10% |

The participants also listed the CT activities which they would prefer using in their

future learning experiences in other disciplines like Maths, Turkish, Science and Social

Sciences (See Table 43). These activities were group presentations (20%), keeping learning

diaries (30%), keeping portfolios (20%), concept mapping (55%), debates (25%), guessing

activities (10%), critical reading and comprehension activities (10%) and problem-solving

activities (10%).

Table 43

*The Perceptions of Participants about the Transferability of CT Activities to Their*

*Future Learning Experiences in Other Disciplines*

| Activities | Frequency/ Percentage | Activities | Frequency/ Percentage |
|---|---|---|---|
| concept mapping | 55% | keeping portfolios | 20% |
| keeping learning diaries | 30% | guessing activities | 10% |

| debates | 25% | problem solving activities | 10% |
| group presentations | 20% | critical reading and comprehension activities | 10% |

**Chapter 5**

**Discussion**

**5.1. Introduction**

Considered as a higher order skill, critical thinking (CT) has been traditionally associated with adult learning or scientific efforts by the educational authorities who have a conservative perception and attitude towards the changing systems. There has been a significant increase in the number of studies defending the idea that CT is an essential life skill that needs to be gained starting from early ages in order to evolve as skilled and successful individuals. Individuals need to be critical thinkers who can communicate and collaborate effectively to have an idea on and get involved in the ongoing issues around them. So the modern education systems tend to cover the acquisition and employment of CT in the curricula of all content areas.

This study aimed at the integration of CT with the English language learning curriculum of 7th grade EFL learners. It tried to understand whether it would be possible to improve the CT skills of the learners through a CT embedded English course design. In order to reach its aim, the study used a mixed method research type having a control and treatment group. For the quantitative part, it had a quasi-experimental nature employing two different kinds of trainings to the control and treatment group participants and measuring the effectiveness of training with the statistical analyses of Critical Thinking Scales Set (CTSS) (Demir, 2006) pre- and posttest results and observation checklists. In order to reach a detailed understanding on the efficacy of CT training process, a journal was kept and analyzed by the researcher and the students' perceptions were revealed through interviews, learning diaries together. These formed the qualitative side of the study.

Based on an infusion approach (Ennis, 1989), treatment group students were explicitly trained in CT along with the language skills. They were provided with redesigned learning

activities enhancing their thinking in English and their improvement in both CT and language prepared by the researcher while the control group students got included in standard language learning activities offered by the curriculum objectives and course book. The efficacy of the treatment group's CT embedded language training was measured by various data collection tools. The quantitative data was evaluated through descriptive statistics and the qualitative data was analyzed with content analysis.

This chapter focuses on the analysis and interpretation of the findings in the light of the research aims and the sample research in the literature. The various results gathered through the triangulated data are explained in a comparative and complementary way with each other.

**5.2. Discussion of the Quantitative Data**

The quantitative data of the present research cover the pre- and posttest results of the CTSS and observation checklists' evaluations. The analysis of the findings reached through quantitative data showed that there has been statistically positive improvement in the critical thinking skills of the treatment group participants.

**5.2.1. Discussion of the results gathered from the CTSS.** In order to make a comparative analysis on the CT levels of the participants before and after the instruction and to measure the effectiveness of a CT embedded course design, a pretest was conducted in the beginning of the instruction process and a posttest was employed in the end.

The statistical analysis of the pre- and posttest results of the CTSS (Demir, 2006) indicated that both control and treatment group students had high levels of CT skills (interpretation, analysis, evaluation, inference and explanation) in the beginning and end of the instruction process. There are some descriptive studies conducted to measure the CT levels of secondary school students and they mostly reported that participants have a high level of CT (i.e. Kalkan, 2008; Köksal & Çöğmen, 2018; Karabacak, 2011). The main aim of

the present study was to increase the present CT skills of the students and the results favored the integration of CT skills into the ELT curriculum in that the treatment group participants improved in a significantly positive way in all scales of CTSS. It was concluded that the treatment group statistically outperformed the control group in the posttest scores of all scales (interpretation, analysis, evaluation, inference and explanation). There wasn't a statistical difference between the pre- and posttest scores of the control group while the treatment group showed a statistically significant increase in the posttest scores compared to the pretest which was the case in other sample studies employing Demir (2006)'s CTSS (i.e. Han, 2020; Kaçar, 2020; Korkmaz, 2018 ). These findings support the main hypotheses of the study and they are consistent with the conclusions of the many research studies in the field. The CT can be taught in educational contexts through a special program (e.g. Alnabhan, Alhamdan & Darwish, 2014; Facione, 1990b; Reed & Kromrey, 2001; Richardson & Ice, 2010; Riding & Powell, 1985) and the infusion of CT into the subject matter content is possible and efficient for the development of CT skills (e.g.. Arslan & Yıldız, 2012; Han, 2020; Kaçar, 2020; Korkmaz, 2018; Reed & Kromrey, 2001; Salur, 2019; Schreglmann, 2016; Zhou, Huang & Tian, 2013). Moreover, an English course design incorporated with CT skills is effective to improve the critical thought of the EFL learners (e.g. Akdağ, 2018; Demirbüken, 2019; Hashemi and Ghanizadeh, 2012; Karakuzular, 2013; Lin, 2018; Petek & Bedir, 2018; Yang & Gamble, 2013).

     **5.2.2. Discussion of the results gathered from the observation checklist.** In order to triangulate the CTSS and to make detailed observations on the students' gains of specific CT skills and subskills, three observation checklists for each participant in treatment group were completed in the beginning, middle, and end of the instruction process. All CT skills were composed of subskills covering certain behaviors. The frequency of each behavior was calculated and they were shown in the form of initial possession and final gain percentages.

Descriptive analysis of the gains showed that there has been an increase in the frequency of each behavior.

The analysis of the total gains of all six CT skills indicated that the behaviors under "interpretation" skill had the highest percentage while the "self-regulation" was revealed as the least frequent skill in the end of the process. The "interpretation" included "*categorization*", "*decoding significance*" and "*clarifying meaning*" subskills. Although the CT skills and subskills were not introduced in a hierarchical progressive order which moved from the basic to the complex behaviors, "*interpretation*" could be a basic level of CT skill that was familiar to the EFL learners. The learners could possibly be exposed to the activities which were related to the CT subskills under "interpretation". This familiarity caused a high achievement among the learners and this skill came forward as the most frequent one as a consequence.

"*Categorization*" subskill under "interpretation" was the most frequent both in the beginning and end of the process and it covered the sorting and classification of the information based on certain groups or the groups defined by the participants. The high frequency for this subskill was observed to be related to the students' acquaintance with categorization activities in their previous learning experiences. They used to classify some of the new words under appropriate headlines for some topics like sports, animals, films and etc. in English course before. Thus, making broader groupings using concept maps which entailed the students' employment of making complex associations between the words, concepts, themes or ideas was an achievable ability that they built on their existent categorization skills.

"*Presenting arguments*" under "explanation" skill related to the students' capabilities to *"give reasons for accepting some claim"* was the other most observed subskill in the end of the process. There could be several reasons for this common occurrence. First, the students obviously began to think critically. They did not stop and think on the reasons for the issues in

the beginning of the process; they used to just create single utterances without a backup explanation. Throughout all the activities and assignments, the students were required to question the assumptions, think about reasons, come up with an argument and they experienced all these without a fear to be judged. Second reason for the high achievement was supposedly because of the elimination of this fear. It was one of the basic aims of the present study to create a motivating classroom environment which lowers the affective barriers of the learners against language learning and CT integration to their learning process. An affective classroom environment in which all the learners are respectful individuals who care each other supports and promotes the development of CT skills. The students were supported to express their ideas freely on issues without any hesitation to create incorrect assumptions or to make grammatical errors in their sentences. In the beginning, the students used to feel as if it would be better not to speak rather than express ridiculous ideas or make mistakes in their utterances; they felt a huge pressure on them created by the lack of their critical thought and language skills. They could express themselves easily in time as there was a more positive climate in the class with the internalization of CT behaviors which enhanced the acceptance of errors as the natural signs of the progress. Besides, they developed a sense of respect to each other; because, they realized that each idea matters and is worth sharing. Another reason for students to present better and more arguments was due to the development of their language skills. Students could not make complicated sentences at first; when they got the idea, it would be easier for them to participate in the discussions with their own arguments.

Comparing to the final gain percentages of CT skills, "self-regulation" skill had the lowest percentage among others. It might be because of the fact that self-regulation is a critical thinking ability that could be permanent in time. The participants could achieve a certain level of self-examination and self-correction through the activities and assignments.

However, it would require a long time for EFL learners to form a habit of regulating their thinking patterns and learning experiences.

"*Justifying procedures*" subskill under "explanation" was the least observed subskill in the end of the instruction process. It observed whether the participants could "*present the evidential, conceptual, methodological, criteriological and contextual considerations which one used in forming one's interpretations, analyses, evaluation or inferences, so that they might accurately record, evaluate, describe or justify those processes to themselves or to others, or remedy perceived deficiencies in the general way they execute those processes*". The participants had an elementary level of English which let them to make simple interpretations, analyses, evaluation or inferences even if they reached a certain level of CT. However, it is not realistic to expect them to "present the evidential, conceptual, methodological, criteriological and contextual considerations". The lower increase in the frequencies of some subskills was most generally because of the fact that the expectations did not take the English proficiency level of the participants into consideration. The learners could create some procedures for some basic contexts, they could justify their procedures, too; however, this justification is a simple explanation of why they supported an idea; not a multi-faceted mitigation of complex judgments.

## 5.3. Discussion of the Qualitative Data

Qualitative part of the present study included the implication and analysis of interviews, student diaries and the research journal. The content analysis of the qualitative data yielded various themes for interpreting the effectiveness of the instruction. Both the treatment group participants and the researcher pointed out the success and fun of the remodeled course design and they supported the idea that the CT can be gained in ELT classrooms through a curriculum focusing on CT together with four language skills.

**5.3.1. Discussion of the results gathered from interviews.** The interview data underlined the effectiveness of the instruction. According to the positive codes extracted from the interviewees' utterances, the lesson design was original, supportive, effective and motivating and these codes are consistent with the sample studies which aimed to improve the CT skills through an infusion model of instruction (e.g. Kaçar, 2020; Korkmaz, 2018; Lin, 2018). The participants supported the idea that an explicit focus on CT in an ELT classroom was efficient to increase the learners' language proficiency, too. Becoming aware of their capabilities and recognizing the importance of qualified thinking in English, they gained a different and positive point of view towards the English course. Rather than an isolated, complex and boring core subject, English was realized to be used for the achievement of individual integrity by boosting the employment of appropriate thinking skills. However, the different and complicated nature of the lesson design empowered through CT could be regarded as demotivating and ineffective by some of the students. They tended to feel anxious and demotivated if they did not get the aim of the course.

The participants mostly implied their content by emphasizing the "fun", "complementary", "creative", "original", "interactive", "collaborative" and "educative" nature of the CT activities. Having practiced most of the activities for the first time in their language learning experience, the students thought that the new kind of perspective in which they actively and really use their thinking capabilities was quite fun and supportive for the development of their critical thought and language skills. Problem solving activities through which the students use their English as a tool to collect information on the interesting and authentic issues, to combine what they knew and what they found with their friends' knowledge and findings, to discuss on the solution of problems with their peers, groups and whole class were among the most preferred types of CT activities. This might be caused by several reasons. First and most importantly, English use was meaningful for learners in that

they could use their language to search for information, discuss on issues and think critically in English to produce real solutions to real problems. The participants of the present study were 13 year-olds who could still be regarded as young learners in the beginning of adolescence and formal operations. Apart from the adolescents and adults, young learners need a guidance to create their own meaningfulness. It is important to give reasons to learners for using and learning the language and CT (Gürsoy, 2011). Problem solving activities provide the learners with specific agenda to use CT skills and target language in a communicative task-based context. Second reason was about the authenticity of the problems and the topics that the problems were related to. Authenticity is essential in language learning in that classroom is the only place where some of the learners can experience a real piece of language. As in language use, authentic content supports the development of CT skills because the aim of the instruction is to supply the real-life experiences for employing critical thought effectively. The learners were always interested in the activities because the topics were authentic areas of interests and controversial issues from the real life. They mostly expressed their preference of authentic topics like *"freedom", "technology", "social media", "movies", "books", "famous people's lives", "foreign cultures", "sports", "free time activities", "environment", "television", "history".* Another reason for the effectiveness of problem-solving activities and the CT activities in general was the interactive focus of them. Interaction is possible in affective EFL contexts where the language barriers of the learners are minimized through a supporting and sensitive approach. Even if the learners had difficulties to get in interaction with their friends in the beginning of the process because of their lack of proficiency in speaking skill, the learners became more willing to express their ideas and to participate in interactions and collaborative activities in time as they got used to the design of the course. Along with the problem-solving tasks, interactive and collaborative activities like debates, role plays, jigsaws, group presentations are among the favorites

through which the learners could speak the language and use their critical thinking while communicating their ideas.  Some students also emphasized the importance of authentic communication with the expression that it would be better if the instructor gave them opportunities to get in contact with the native speakers. They thought that the real communication in a language is the perfect way to develop CT skills in that they could practice the way of appropriate thinking in real or real like communicative situations.

Even though most of the students expressed their content and favor for CT activities, some of them proclaimed that CT activities might cause stress because of their complex nature. This complexity was created by the fact that the students had never experienced those kinds of activities before. The introvert and low-proficiency level of students who could hide themselves without participating in the lessons before had to get in the interaction in a way that forced them to think and speak English at least for simple activities within a small group. Furthermore, CT based language learning activities required the constant effort of the participants which they needed to keep in and out of the class. This effort was regarded as daunting for some of the participants.

The interviewees mostly expressed their preference on the materials taken from the real life because of the materials' fun, supportive, original and authentic nature. Like CT activities related to the current issues requiring real communication in English, authentic materials supported the meaningful language use. Every language has a specific thinking pattern consisting of affective, cognitive, cultural and pragmatic elements. As Davidson (1998) suggests "part of the task of the ESL/EFL teacher is to prepare students for the world outside their societies" (p.122). As the learners were trying to boost their skillful thinking in the target language, the authentic texts taken from the real life presented a sample thinking pattern in English. Provided a real context and authentic content to think about, the learners

became more familiar with the target CT skills that they tried to gain through the CT embedded foreign language instruction.

Teacher's role in a CT-based language classroom is giving the necessary guidance and support for the learners. Rather than being a figure of authority, the teacher is a guide who shares the responsibility of learning with the learners. In present case, the participants generally agreed on the influence of positive attitudes of teacher on the development of the capability to express their ideas freely. Furthermore, some of them signified the importance of teacher's being a model with her thinking style and professional qualifications. Teacher's use of English, respect to each student's ideas, fair approach to all students, welcoming the differences and difficulties of the students and critical thinking employment in her own teaching practice were regarded as supportive attitudes improving the motivation of the learners for the CT use in their own learning experiences.

CT embedded English course design required students to be active and conscious individuals who could make analyses, evaluations, inferences, interpretations, explanations on issues and who could regulate their own learning experiences. So, self-regulation covering the self-assessment and self-correction subskills formed the most important and frequent version of assessment during the instruction process. The efficacy of self-assessment was commonly underlined by the participants, too. Portfolios and learning diaries were among the most frequent answers for the favorite CT assignments which they practiced throughout the process and they would continue keeping in their future experiences. Considering peer and group evaluation activities as important boosters for their recognition of their own progress, the learners also stated that making analyses on each other's ideas and work required looking from various angles which was an essential component for CT. The desire for keeping familiar applications for the assessment was strong for some of the learners even if they expressed their content with CT activities. It was a fixed perception among the students that

the assessment was the aim of the whole instruction process; although they welcomed the originality and difference in the activities, they wanted to stay in their comfort zone with the assessment types. Furthermore, the complicated and progressive nature of the assessment required a conscious focus on the lesson; so, the learners who had a lower proficiency level tended to feel much more anxious. The anxiety level of the introvert students who were hesitated to get in contact with their friends for the peer and group evaluations was also high which cause discontent with the CT embedded assessment types. The worries of the participants about the assessment are observed in other research studies, as well (i.e. Lin, 2018).

**5.3.2. Discussion of the results gathered from student diaries.** Though it was a graded compulsory assignment for the progressive assessment of every one of the students in treatment group, only half of them handed in their diaries in the end of the instruction process; and not every diary handed in successfully yielded fruitful results for the evaluation of students' perceptions on the course's effectiveness. For the regular control of the diaries, students were assigned to bring and got a confirmation check on their diary notes in the beginning of every new week. Some of the students couldn't get the aim for diary keeping appropriately and they brought their diaries in the last week by passing these check points. They wrote about their daily routines and evaluations on other disciplines or they wrote about their language learning process by using frequently repeated single words or short utterances. So, the analysis covered the limited number of students' perceptions who were successful and eager to learn about CT during the process. This was a drawback for the discovery of negative ideas on the course design.

The most common utterance for the lessons was "fun" in the diary data. The learners expressed their enjoyment after most of the sessions and activities. As the activities included

authentic and interesting topics from real life and required active and interactive participation, they supported the feeling of joy and motivation among the participants.

The learners generally thought that CT embedded language learning activities were effective to improve their language skills. The most common occurrences for the linguistic gains were on the listening and speaking skills. The interactive nature of CT based activities was considered as supportive for the activation of critical thought. Trying to decipher and convey the meaning by using their thinking skills, the learners also underlined that they could develop their proficiency in English, especially in speaking and listening skills, which was an expected result of the remodeled course design (i.e. Deniz, 2009; Lin, 2018; Yang & Gamble, 2013).

Finding similarities and differences, making descriptions and problem-solving tasks associated with a more basic level of CT were the most common cognitive concepts in student diaries. The learners could mostly achieve the subskills under interpretation, analysis and evaluation skills of CT. However, they were able to manage only the basic subskills of inference and explanation skills and they evaluated the CT activities related to those skills as difficult. This difficulty was because of the fact that, inference and explanation required a certain level of language proficiency. An important subskill of explanation, justifying procedures, for instance, was a complex expectation from the learners who could determine and evaluate the procedures at a basic level without presenting various considerations for the justifications.

As the diary keeping a metacognitive task itself, the utterances related to self-examination and self-correction of learners on their learning process of CT and language were very common. However, in the beginning of the process, they had difficulties in understanding the aim of the new kinds of activities and assignments. They couldn't make detailed evaluations on their own success and failures in CT. It took time for the learners to

develop their self-evaluation abilities, which was an expected situation in that self-regulation skill development covered a long and steady habit formation-process.

Some of the students tended to express their anxiety in their earlier records of their diaries (i.e. Lin, 2018; Yücel, 2008). Even if they were outgoing learners who could manage many other successes out of the language course, they tended to feel frustrated after speaking sessions which contained a deeper level of CT. They felt anxious and frustrated about the unfamiliar and complicated methods, activities and assessment which required them to think in a different way. This perception was most generally associated with their lack of vocabulary and lack of necessary language structures which prevented them to express their thoughts easily by creating meaningful utterances in English by the students (Lin, 2018). Furthermore, unstructured speaking activities like group discussions and debates which required a spontaneous interaction among students without a preparation and group presentations which required a collaborative work of the participants were a cause of stress for few students. As they improved in speaking skill and got used to accept interaction as a basic component of the course, they reported that the interactive activities were more effective in boosting their CT skills comparing to the other kinds of activities.

**5.3.3. Review of the results gathered from research journals.** In the beginning of the instruction process, the participants felt intimidated to think in a different way. They couldn't think out of the box and they showed resistance to change their way of thinking. They also generally wanted to keep their familiar routine for the language learning activities and hesitated to attend in the assessment process. CT based language learning activities and assessment were a cause of stress and intimidation for most of the students. According to the researcher, the main cause of this situation was the students' failure to comprehend the actual aim of the process and to internalize CT properly in their own learning journeys. However, towards the end of the process, the researcher reported that the learners could understand the

purpose and achieve a certain level of CT which they regarded as effective and important component of learning the language.

The most problematic part of the study was the guidance of the learners in CT based speaking activities. Students' motivations to speak loud about their ideas were low. Though they were more relaxed while talking with their peers, they felt anxious to speak in groups and whole class. One of the main reasons for this anxiety was because of the fact that they thought that their lack of fluency and accuracy would be judged by their friends. Another reason might be the difference in their previous language learning experiences and the infused language classes focusing especially on interactive activities. Even if there were high-graded students in their earlier English courses, most of them were not used to speak the language. They couldn't create original and meaningful utterances easily. In interactive CT activities like debates and role plays where the learners were supposed to think from different perspectives and express their ideas on issues, they tended to use memorized chunks or irrelevant but very simple vocabulary. They had difficulty to get in different personalities and adopt various point of views in role plays and they found it very hard to use new learned vocabulary in their interpretation, evaluation and explanations. As they became more familiar with the idea of thinking critically in the English course and with the effect of training, they felt safer in speaking sessions and the interactive activities which made them communicate in English were their favorite.

For the expression of their ideas on issues in problem solving based activities, the learners differed according to their capabilities. Some of them focused on the creation of many ideas and an active participation while some of them preferred to produce less but more sound and innovative expressions. The researcher underlined that "*The quantity of the ideas did not show the quality of them because some of the ideas were memorized, copied or just said to be said*". This brings the creative thinking and critical thinking distinction into the

mind. According to Paul and Elder (2006) creativity is a requirement for the "good thinking" along with CT. CT should be supported with creative thinking. It was an aim of this study to develop the ability of learners creating many qualified ideas, too; so the creativity was supported in every part of the instruction.

For the acquisition of language structures and vocabulary, the researcher used text-based activities through which the learners could notice and reveal the rules for language structures and for the meaning of the words by themselves. Categorization is a basic level CT subskill which was used commonly for the CT based grammar and vocabulary activities. Creating concept maps guided students to think critically in the target language to make classifications among the concepts according to their similar and different characteristics. It covered higher order thinking, which was a new concept for the learners of the present study. In time, when students got used to think critically in a language course, they could easily apply concept maps in their own learning studies.

Self-regulation was the hardest CT skill to improve in a limited time in that it required a habit formation process in students which took time. The learners were provided with self-regulative activities from the beginning of the process and the students who participated in their own learning progress actively, deliberately and successfully could achieve a good amount of autonomy which gave place to the self-regulation along with many other capabilities. However, not every student was willing to take part in self-assessment tasks which they found daunting and complex. The same case was observed with other type of new assessment types like progressive evaluation, peer and group assessment sessions and institutional exams including new kind of four skill questions empowered through CT. Some of the participants usually expressed their preference in standard assessment types in the form of exams covering close-end questions. They focused on the grades too much that they wanted a solid concept of English course grading. Even if they could achieve a higher success

with the new type of progressive performance evaluation, they still tended to regard standard examination focusing basically on language structures and vocabulary as a valid way for the assessment. The learners' understanding of the purpose of assessment, which is to provide feedback for their improvement on vocabulary and language structures, needs to change and CT embedded course design supports such a change.

## 5.4. Comparative review of all research findings

This study is one of the current efforts trying to reveal the effectiveness of an emphasis on CT in educational contexts (e.g. Akdağ, 2018; Alnabhan, Alhamdan & Darwish, 2014; Arslan & Yıldız, 2012; Bahçe, 2012; Bedir, 2013; Dağlı Türkmen, 2008; Demirbüken, 2019; Deniz, 2009; Evren, 2012; Fahim, Barjesteh & Vaseghi, 2012; Han, 2020; Hashemi and Ghanizadeh, 2012; Kaçar, 2020; Korkmaz, 2018; Lin, 2018; Petek & Bedir, 2018; Pourghasemian & Hosseini, 2017; Reed & Kromrey, 2001; Richardson & Ice, 2010; Riding & Powell, 1985; Salur, 2019; Schreglmann, 2016; Sham, 2016; Uğurlu, 2010; Wilson, 2016; Yang & Gamble, 2013; Yücel, 2008; Zhou, Huang & Tian, 2013). These efforts have generally yielded for positive results for the achievement of a specific training program on CT skills or for the influence of a CT based course instruction on various phenomena in secondary school contexts (e.g. Dağlı Türkmen, 2008; Deniz, 2019; Han, 2020; Kaçar, 2020; Korkmaz, 2018; Schreglmann, 2016) or beyond, with older age or higher-proficiency groups (e.g. Akdağ, 2018; Alnabhan, Alhamdan & Darwish, 2014; Lin, 2018; Zhou, Huang & Tian, 2013). As in other fields, there has been an increase in the number of CT studies in ELT field recently; however, the researchers tend to associate CT with higher-level language proficiency or adult thinking patterns (e.g. Arslan & Yıldız, 2012; Bahçe, 2012; Bedir, 2013; Demirbüken, 2019; Fahim, Barjesteh & Vaseghi, 2012; Petek & Bedir, 2018; Hashemi and Ghanizadeh, 2012;  Pourghasemian & Hosseini, 2017; Sanavi & Tarighat, 2014; Sham, 2016; Yang & Gamble, 2013; Yücel, 2008); and there are few studies focusing on the possibility of

CT training in secondary school EFL contexts (e.g. Çalışkan, 2006; Deniz, 2019; Kazancı, 2014; Uğurlu, 2010). This study was significant with its integration of CT into a secondary school English course curriculum. Considering the mutual benefits of language learning and CT, the researcher concluded that CT inclusion in an EFL context is effective for the development of CT and many other phenomena like motivation, language skills, self-awareness and etc.; this conclusion is consistent with many studies applied either with university students and prospective teachers (e.g. Bedir, 2013; Demirbüken, 2019; Hashemi and Ghanizadeh, 2012; Karakuzular, 2013; Petek & Bedir, 2018; Yang & Gamble, 2013), or high school (e.g. Akdağ, 2018; Lin, 2018; Wilson, 2016) and secondary school EFL learners of English (e.g. Çalışkan, 2006; Deniz, 2019; Kazancı, 2014; Uğurlu, 2010). The effectiveness of the CT embedded English course design was proven by the various and excessive amount of data collected through the CTSS, observation checklist, research journal, students' learning diaries and interviews. The significant difference between the pretest and posttest scores of all the skills measured was consistent with the positive increase in the skills and subskills of CT recorded by the observation checklists. Furthermore, the research journal emphasized the improvement in students' ability to think critically and the clear change of perception towards the use of CT in their learning experiences. The data in student diaries supported the research findings in two ways. First, it could be argued that the participants' CT skills were improved by tracking their critical thought reflections from the beginning to the end weeks and by analyzing their ability to make detailed analyses and evaluations on the instruction process and their own progress. Second, the learners' perceptions about CT were evolved in a positive way towards the end of the process. The same thing was the case with the interviews. Through the interviews, the learners conveyed their perceptions on the effectiveness of CT embedded English course design. The interview data was a part of qualitative data analyzed for answering the research questions. By the way, the interviews

provided fruitful insights for the researcher in order to comprehend the learners' CT level by examining the competence of learners in answering the interview questions via using appropriate CT skills.

For the success of CT based English course design, various reasons were revealed from the qualitative data; however, the most noticeable factor was the motivation of the participant learners. The motivation is a broad and important component for CT training in EFL contexts (Chamot, 1995; Facione, 2015). The learners who come to the ELT classroom with a certain level of CT in their mother tongue need an explicit and motivating guidance in their path for the CT acquisition in the target language. In present case, the participants were successful, enthusiastic and ready to enjoy the process but they felt intimidated, demotivated and frosty to improve their language and CT skills at first. They had to be pushed harder to achieve great success in language skills especially in productive ones along with CT skills. So the main focus of the instruction was the motivation by keeping "*meaningfulness*", "*support*" and "*fun*" in core all the time. In order to meet at a shared end, the learners were given a purpose at first to accept the necessity of CT integration in their language learning and the language was presented as a tool to enhance *meaningful* communication to improve their critical thought. Widdowson (1990) asserted that "effectiveness of language teaching will depend on what is being taught, other than language, that will be recognized by the learners as a purposeful and relevant extension of their schematic horizons" (p.103). So, in order to make CT based language learning meaningful for the learners, the instruction design should be set considering the relevant context. Widdowson (1990) proposed that if the learners don't have a specific agenda and aim to learn CT, it is more appropriate to apply "task-based, problem-solving curricula" which can be used in their future learning experiences (Pally, 1997, p.306). Related to this pragmatic task-based perception to the integration of CT and language learning, the present study was organized in a way that the learners could internalize the CT in

their learning process. Given a reason first for the acceptance of CT as a basic component of their language learning process through real life examples and authentic practice, the learners tried to learn how to employ their CT skills for the better language use and they used the target language as a communication tool through which they could achieve the proper administration of CT skills (Deniz, 2019; Uğurlu, 2010). They interacted with their friends to the solution of problems, expressed their own ideas, made critical evaluations, inferences and analyses, discussed and negotiated on controversial issues and assessed the progress of their friends and themselves critically. The learners deciphered and created the meaning during the course by using English, thus they improved their thinking capacities while developing their proficiency in language skills. This observation finding is consisted with many of the studies in the field (e.g. Deniz, 2019; Lin, 2018, Ördem, 2016; Paul & Binker, 1990; Pourghasemian & Hosseini, 2017; Uğurlu, 2010; Yang & Gamble, 2013). One of the most important issues to focus on is the *support* that should be given to the learners who are trying to create their own meaningfulness for CT and language integration. It is an essential first step to lessen the affective filter of the learners which they bring with them to the ELT classrooms. Feeling safe in a nonthreatening language learning environment, the learners tended to be more open to the changes for the incorporation of CT to their learning context. Teachers are the leading figures who are supposed to offer this supportive context; and in this study, "support" provided by the teacher was among the most frequent codes produced by the participants for their perception on the effectiveness of CT instruction. The learners were always encouraged through giving positive feedback and boosting a sense of achievement and preciousness. They expressed their content with this kind of teacher attitude very often in their diaries and interview. Knowing that they would be listened respectfully and valued in all circumstances, the learners stated that they felt more motivated to get involved in the CT tasks. Furthermore, a few of the participants noted that the teachers' behaviors and statements were consistent. She thought

critically in her teaching experience and being a model for the learners was a noticeable and important trigger for the CT improvement in classroom (Akdağ, 2018; Dağlı Türkmen, 2008). Another core element of the instruction was *fun*. The learners were expected to have fun for their active motivation to learn CT and English. This expectation was successively met in that the researcher observed the learners enjoyed most of the CT based language learning activities and nearly all the students reported they had great time during English course: *"Time is like a turtle. Going very slowly... But English lessons are funny and fast".* They regarded the CT embedded training productive and entertaining and expressed their wish for the continuity of this study covering the future experiences, which were among the main implications of many sample studies (e.g. Deniz, 2019; Lin, 2018; Ordem, 2016; Uğurlu, 2010).

The Delphi researchers, co-creators of CT skills, have stressed that the CT skills are not necessarily gained in a progressive or hierarchical order; an individual who lacks the analysis subskills can be proficient in self-regulation and can be regarded as a critical thinker anyway (Facione, 1990). The results of the present study supported this view in that the learners' mastery on CT skills was differed from each other and their total improvement did not follow any hierarchical order of the skills. According to the observation checklist, the learners tended to show more the behaviors which were already existent in their thinking pattern in the beginning. If they had a certain level of ability in presenting arguments, they most generally developed the behaviors related to this subskill in the end of the process which could be explained through their various background experiences on different CT skills. However, the researcher reported in the research journal that most of the learners tended to move according to the given order of the skills by the Delphi Study. Categorization under interpretation was revealed as the most observed subskill in the end of the process and most of the learners could easily achieve the CT tasks related to the interpretation skill which was introduced as the first CT skill. Interpretation was shown up as the basic skill gained by most

of the learners according to the results. The analysis and evaluation skills were easily improved while the learners had difficulties in developing inference, explanation and self-regulation skills respectively. It might be because of the fact that the order given in Delphi Study was appropriate for the second language acquisition process of the learners and the critical thought improved consistently with the language skills.

Self-regulation was an important skill for thinking and learning how to think critically (Facione, 1990; Üstünlüoğlu, 2004). Its improvement was evaluated according to the data gathered through observation checklist, research journal, student diaries and interviews. According to the observation checklist completed three times for each treatment group participant, self-regulation was the least improved skill at the end of the process. This finding was supported with the research journal records as the researcher noted that the students couldn't set their objectives by themselves and take responsibility for their own development which was an obstacle for the improvement of CT among the learners. They had problems with the self-assessment and regulation sessions and assignments. Although there was a positive progress until the end of the process, it was still proven as a problematic area considering the students' fulfillment of the required assignments like diaries and portfolios. 15 students out of 31 handed in their learning diaries at the end of the process and even though the diaries gave fruitful inceptions on the effectiveness of the CT embedded course design and learning process, most of the students failed to make detailed analyses on their own success, failure, difficulty areas, strategies for development and etc. However, the interview data pointed to the effectiveness of self-assessment with most interviewees' agreement. They considered that self-regulation studies were useful for their development of CT and they favored self-regulative CT activities like keeping learning diaries and portfolios. The mismatch between the findings of various data still emphasized the deficiency of self-regulation skill of the learners in that even if they expressed their content and preference with

self-regulative CT activities; they failed in the practice regarding the observation checklist, learning diaries and research journals. The limited time of the instruction might be the cause of the students' underachievement in self-regulation skill. It required a continuous focus to develop the self-awareness and a lot of practice to be proficient in self-correction. However, the lack of self-regulation did not show that the students could not think critically. It should be noted that self-regulation is a different kind of skill on its own which requires the employment of all skills to use that skill proficiently; one has to analyze and evaluate his/her own inferences and interpretations (Facione, 1990). Some of the Delphi panelists have also asserted that it is difficult to assess the possession of self-regulation skill through just pen and pencil tests as it has a metacognitive aspect besides a cognitive one. Furthermore, they underlined that an individual does not necessarily "proficient at every skill to be perceived as having CT ability" (Facione, 1990, p.11).

Table 44

*Comparative Review of All Research Findings on the Development of CT Skills*

| CT Skills and Subskills | | CTSS | Observation Checklist | Interviews | Student Diaries | Research Journal | Sample CT Tasks from the Present Study |
|---|---|---|---|---|---|---|---|
| **Interpretation** | Categorization | + | + (3) | + (3) | + (3) | + (3) | Concept mapping |
| | Decoding significance | | + (2) | + (2) | + (2) | + (2) | Making connections between topics, concepts or ideas |
| | Clarifying meaning | | + (2) | + (2) | + (2) | + (2) | Critical writing tasks |
| **Analysis** | Examining ideas | + | + (1) | + (2) | + (2) | + (1) | Role plays |
| | Detecting arguments | | + (1) | + (2) | + (2) | + (1) | Debates |
| | Analyzing arguments | | + (2) | + (2) | + (2) | + (2) | "Fact or opinion" task |
| **Evaluation** | Assessing claims | + | + (1) | + (2) | + (2) | + (1) | "Vague or accurate" task |
| | Assessing arguments | | + (2) | + (2) | + (2) | + (2) | "Three step interview" task |
| **Inference** | Querying evidence | + | + (1) | + (2) | + (1) | + (1) | Evaluating the reliability of sources |
| | Conjecturing alternatives | | + (2) | + (2) | + (1) | + (1) | Guessing activities |
| | Drawing conclusions | | + (1) | + (2) | + (1) | + (2) | Critical reading tasks |
| **Explanation** | Stating results | + | + (1) | + (2) | + (2) | + (2) | "Think-pair-share" task |
| | Justifying procedures | | + (0) | + (1) | + (1) | + (1) | Problem solving tasks |
| | Presenting arguments | | + (3) | + (1) | + (1) | + (2) | Debates |
| **Self-regulation** | Self-examination | not tested | + (0) | + (2) | + (0) | + (0) | Reflective student diaries |
| | Self-correction | | + (0) | + (2) | + (0) | + (0) | Self-evaluative discussions |

+ (developed CT subskills), 0 (the least developed), 1(less developed), 2 (more developed), 3(the most developed)

There are studies which tended to ignore individual differences and exclude them from CT instruction process as CT is based on a solid conceptualization of critical thinker with certain expected characteristics (Karakuzular, 2013; Yücel, 2008). The CT activities in present study were designed regarding the learners' differences in their interests, preferences, age and proficiency levels, possible background experiences and individual differences like learning styles and motivation. The learners differed from each other in their strong CT skills due to their background experiences. Some students achieved extremely well in CT activities using their basic level of language skills, even if they don't have a high proficiency in English. Furthermore, some students were extroverts who preferred interactive tasks such as debates, group presentations, collaborative problem-solving activities, jigsaws and etc. whereas some of them were introverts who felt more comfortable with writing diaries, keeping portfolios, individual problem solving activities, critical reading and writing activities and etc. The instruction covered the activities from simple to complex by carrying out a constructivist approach and covering the topics that could intrigue most of the teenagers, the materials which were appropriate for various learning styles and assessment types that measured the success of the learners through various types of examinations. However, the learners were informed on the necessity of stepping out of their comfort zones and preferred ways of thinking. They were supported to welcome all kinds of activities which gained power from the self to the formation of whole. They were required to make self-regulations along with the group evaluations for the resolution of issues with a common sense.

The aim of the study was the full integration of CT to all aspects of language learning process, especially the activities and assignments covering four language skills. Offering a large variety of learning tasks chosen appropriately to different proficiency levels and learning styles, English course curriculum enhanced with CT was effective for the improvement of four skills. Even if the learners attained a significant level of achievement in

all kinds of activities, the development is more remarkable in CT based interactive speaking activities. One of the basic reasons of this is the fact that somehow learners were already familiar with critical reading and writing tasks from their previous learning experiences. Starting from the very beginner level, the improvement is quite noteworthy in interactive speaking and listening activities designed with and for the critical thought emphasis. In the beginning of the process, the researcher observed that the students were not used to get involved in speaking activities during the English course; they usually felt nervous during interactive CT activities which required an active thought and participation of them. They wrote about this in their diaries and they used the word "*stressed*" a lot after the role-play and debate sessions. The researcher also stated that the activities covering improvisational chunks rather than memorized or structured tended to create a chaos in students' thoughts and "*intimidated*" them. Students were observed to have "*anxiety*". According to the research journal, the reason for this anxiety might be because of the students' lack of language proficiency, vocabulary and experience in those kinds of unstructured speaking tasks. This reason matches with the common "*don't know the words*" or "*cannot remember the words*" statements of the participants (Lin, 2018). As they were used to a vocabulary and grammar-based conception on language learning, they had difficulties. However, in order to make students more confident, the researcher preferred casual speaking activities though jigsaws and many other collaborative tasks in the beginning of the units for warm-up. These speaking sessions were labeled as "*fun*" by the students in their diaries. They asserted that *"they could speak English"* and the researcher agreed with them on the effectiveness of these basic level interactive activities for the improvement of speaking skill and CT. As they proceeded in CT and language skills, they could more easily handle with complex speaking tasks like role plays and debates. Although the debates were revealed as the most preferred type of language and CT booster activities in interviews, it was regarded as a problematic activity by the

researcher in research journal. This mismatch between the perceptions of the students and the researcher can be as a result of the difference in the expectations. The instructor expected students to discuss on the given issues fluently and produce possible solutions and creative ideas on the problems by using the language effectively. Students were required to come up with counter assumptions on what their friends said by making analysis and evaluations. However, the students tended to prepare their ideas beforehand and instead of making an interactive discussion, everybody tried to express his/her own idea without confuting the others. They commonly used their memorized, pre-structured or copied utterances rather than evaluate, interpret and discuss on what their friends said. When the researcher wanted to use debates as a way to access to a higher level of interactive thinking which the students use spontaneously in their communications, the students reminded their actual level would require more basic thinking thresholds like creating assumptions regarding the issues, detecting causes and effects for the problems, coming up with solutions to the questions. From the perspective of students, a desire for success was an important impetus. Creating utterances on their ideas in a competitive manner with their friends motivate a feeling of success for the students. Furthermore, the researcher noted that the learners had a high level of anxiety during the unstructured speaking tasks like debates. The learners also expressed their anxiety and intimidation during the speaking tasks in their diaries and interviews; however, this did not prevent them to regard the debates as effective and fun. Thinking and talking on real issues from real life became a fun and interesting activity for them. Despite the difficulties learners had in the beginning and middle of the process, debates were revealed as effective to develop CT (Richardson & Ice, 2010; Yang & Gamble, 2013). Furthermore, another reason for students' contentment with debates was its collaborative and supportive nature. The learners confessed that they liked the feeling to be welcomed positively by everyone with a respect and to be motivated by the teacher even though they made mistakes.

CT embedded language learning activities were generally regarded as supportive and fun by the learners; however, some of the activities were more appropriate to motivate the learners and improve their CT. For example, most of the students expressed their pleasure about the video sessions; they said that they had great time watching videos during the class (Yücel, 2008). The researcher also mentioned the effectiveness of the video-supported activities for the improvement of CT development in language classroom. The authentic content of the videos motivated the learners and raised their awareness on global issues while having fun. However, it is important to note that some of the students failed to understand the educational gain of watching videos. They sometimes misinterpreted the purpose of video sessions and they were unwilling to participate in follow-up tasks. They focused too much on the funny sides of the texts and they tended to ignore the pre-instructions given by the researcher to activate their CT while watching the videos.

The same motivation feeling of the learners was existent for the different assessment ways covering mostly the progressive performance evaluation by using self-, peer-, group-assessment techniques. The learners affirmed that these kind of techniques were effective to make them think critically and to develop their self-awareness. However, there are few learners who were more conformist against the new conception of assessment. Even if they were high-achievers in the evaluation sessions, they wanted to keep their previous habits for the assessment as in the form of pen and pencil examinations of their knowledge on vocabulary and language structures (Lin, 2018). These learners were observed to have a great amount of anxiety during the assessment sessions. This was commonly because of their learning styles and preferences. But the researcher thought that the expectations of these learners' families had an effect on their assessment anxiety level. The learners preferred concrete data on their success which they could explain to their families easily.

It's an accepted limitation of CT research that the learners' background knowledge is important for them to think critically (e.g. Bailin et al., 1999; McPeck, 1990; Toplak & Stanovich, 2002; Willingham, 2007; Rotherham & Willingham, 2010). As Rotherham and Willingham (2010) have pointed out in their article, content knowledge is necessary for learners to "use thinking skills properly and effectively" (p.18). "If you remind a student to 'look at an issue from multiple perspectives' often enough, he will learn that he ought to do so, but if he doesn't know much about an issue, he *can't* think about it from multiple perspectives" (Willingham, 2007, p.8-9). In present case, the participants lacked the necessary English knowledge. They were at the beginner and pre-intermediate level; however they could not make sentences in English; so, they had so much difficulty in getting used to the CT training activities. Even if designed according to their proficiency level, the activities required students to participate actively and willingly, but the learners needed too much motivation and guidance to do so. Another limitation with the content knowledge issue was that the training program contained authentic material taken from the real sources. The texts were from the current issues like technology, films, art, sports, music, social life, history and etc. In order to be a part of discussions and expressing their opinions, learners should have been familiar with the related contexts to some extent (Lin, 2018; Stapleton, 2002). The absence of such a familiarity lessened the effect of materials to improve thinking.

Table 45

*Comparative Review of All Research Findings for the Strengths of CT Embedded English Course Design*

| From the perspective of… | Participants | Researcher |
|---|---|---|
| CT Aims | *Supportive for the improvement of both CT and language skills | *Supportive for the improvement of both CT and language skills |
| . | | *Inclusion of both critical and creative thinking |
| | *Fun and creative          *Original | *Fun                    *Interactive |
| | *Interactive          *Collaborative | *Increase in successful collaboration |
| | *Meaningful          *Authentic | *Adaptable to the different learning styles |
| | *Supportive for both CT and language development | *Supportive for both CT and language development |
| | *Favorite activities for CT development: problem solving tasks, debates, role plays, jigsaws, group presentations, keeping diary and portfolios | *Including text-based vocabulary and grammar learning |
| | | *Including creativity and creative thinking |
| | | *Favorite activities for CT development: problem solving tasks, jigsaws, group discussions, peer and group assessment |
| CT Materials | *Intriguing and interesting          *Fun | *Interesting and fun content for the target age group |
| | *Authentic materials offering real contexts for the exposure and employment of skillful CT | *Controversial and popular topics that motivate CT and English |
| | *Supportive for the meaningful language use | *Authentic materials offering real contexts for the exposure and employment of skillful CT |
| CT Assessment | *Self-regulative | *Cause a sense of achievement and motivation |
| | *Self-assessment through the portfolios and diaries | *Supportive group and peer assessment increasing collaboration |
| | | *Booster for the autonomy through self-assessment |
| Teacher attitude | *Positive and motivating          *Fair and respectful | |
| | *Share responsibility for learning CT and the target language | |
| | *A model for the appropriate use of CT | |
| | *Guide and support the learners' CT development | |
| Student attitude | | *Enthusiastic, motivated and interested |
| | | *Bright and open to the changes |
| | | *Positive towards the researcher, study, CT and language learning |
| | | *Students could think critically more or less towards the end |

Table 46

*Comparative Review of All Research Findings for the Weaknesses of CT Embedded English Course Design*

| From the perspective of… | Participants | Researcher |
|---|---|---|
| CT Aims | *Complex<br>*Not-comprehensive and meaningful for some | *Intimidating<br>*Hard to comprehend and integrate with language learning aims |
| CT Activities | *Complex<br>*Unfamiliar and strange<br>*Daunting (require a constant effort)<br>*Cause of stress | *Cause of anxiety          *Unfamiliar<br>*Lack of vocabulary, proficiency and experience<br>*CT based speaking activities were complex and stressful<br>*Students wanted to keep their familiar techniques like memorization and translation<br>*Group works caused stress among some introvert students |
| CT Materials | *Complicated<br>*Unfamiliar | *Complex<br>*Some of the materials were not appropriate for all learning styles |
| CT Assessment | *Intimidating          *Cause of anxiety<br>*Unfamiliar          *Complicated<br>*Far from memorization which is a familiar routine<br>*Requires too much effort<br>*Requires good relationship with peers (as a result of collaborative nature of group and peer assessment) | *Intimidating        *Too hard and complex to get the aim<br>*Push hard students to leave their comfort zone where they were familiar with vocabulary and grammar examinations<br>*Require an active and conscious effort and participation<br>*Require skillful thinking at every step instead of memorization |
| Teacher attitude | *Cause of stress for some who did not prefer the frequent use of target language | |
| Student attitude | | *Difficulty in thinking from different perspectives<br>*Lack of vocabulary, proficiency and experience<br>*Having a desire to keep their familiar routines<br>*Having a desire to stay in their comfort zones.<br>*Group works caused stress among some introvert students |

**Chapter 6**

**Conclusion**

Focusing just on the knowledge is a fade-up trend in today's highly technological era in which the individuals get the necessary knowledge fast and easily by themselves through technology. In order to make the knowledge acquisition process meaningful, purposeful, efficient and useful, individuals should have the basic 21st century skills. Supporting the view that knowledge and skills are interrelated, Bialik and Fadel (2015) assert that "deep understanding and actionability for the real-world will occur only by embedding skills within knowledge domains, such that each enhances the other" in the guide of Center for Curriculum Redesign (p.2). The integrity of 21st century skills into ELT field has been gained importance recently as in other domains. The four core abilities, creativity, communication, collaboration, critical thinking, have shaped the trends to manage the language learning processes more effectively.

Critical thinking (CT) is an important life skill for keeping the appropriate social, academic and intellectual integrity. With the absence of CT, individuals have certain difficulties in questioning, reasoning, making judgments and problem-solving abilities as in meeting the requirements of the century. CT is an essential skill in that it prevents individuals to become blind believers who make pre-judgmental decisions. Sound judgments require the employment of successful CT process and they lead individuals to the creative solution of problems with the perfect critical analysis. Modern individuals should be critical thinkers who are "reasonable" and have a kind of "intellectual autonomy" (Paul et al., 1989). They make their own analysis and create their own reasons to accept or refuse a judgment. They are the manager of their own reasoning process and they can use their thinking capacity skillfully. However, in order to reach this level of autonomy in thinking and reasoning, people need to learn how to employ appropriate CT skills for proper contexts. The nature of this learning

process is a source of controversy among researchers. Some believe that CT is not a skill that can be learned or acquired through a specific instruction; it is a natural process of humans' intellectual growth whereas most of the researchers think that CT is a skill that requires a special training. The way of its training is another cause of discussion in that CT can be a separate domain with its own sources or it is integrated into the subjects of domains either through an implicit incorporation without a direct emphasis or with an explicit focus covering the conscious instruction of both CT skills and subject matter contents.

There has been an increase in the number of CT research with the rise of interest in 21s century skills in educational contexts. Associated with adult thinking capabilities because of its complex cognitive requirements, CT has been mostly the focus of the studies of universities. The studies trying to reveal or train the CT of secondary school learners are limited in number. The case is similar in ELT field in that the researchers tend to study with advance level of EFL learners, mostly in universities. These efforts generally look for the effect of CT training on a certain phenomenon (speaking proficiency, reading and writing abilities, collaborative learning and etc.) or vice versa. There are few studies investigating the effect of CT integration to the course curriculum as a whole (e.g. Akdağ, 2018; Yücel, 2008) and the number is fewer in secondary school research field.

With the aim of the determination on the teachability of CT among EFL learners and the effectiveness of a CT embedded English course design in a secondary school ELT classroom; the present study had an embedded mixed-method research design which used quantitative and qualitative data collection ways concurrently. It is unique in that it aimed to improve the CT skills of the learners with a full incorporation of the language learning activities covering four language skills with CT emphasis. Differentiating between the standard language curriculum and CT embedded language learning curriculum, this quasi-experimental study covered two kinds of instructions administered in control and treatment

groups. The analysis of various and excessive amount of quantitative and qualitative type of data gathered through CT skills scales, observation checklists, research journal, students' diaries and interviews indicated that the treatment group who was exposed to the remodeled English course design significantly outperformed the control group. The treatment group participants commonly expressed their content about the CT embedded course design, activities, materials, assessment ways and they emphasized that they improved their CT abilities and language skills in a fun and motivating way which they desire to keep during their future experiences. The perceptions of the participants generally matched with the expectations and observations of the researcher with just slight differences. The researcher noted in the research journal that the CT instruction was quite successful and applicable in the present context and the implications of this study have yielded for fruitful insight for future applications of sample research.

## 6.1. Implications of the Present Study

With the aim of incorporating CT skills in English language learning curriculum, this study had an infusion approach to the instruction of CT. Besides the explicit emphasis on important CT skills that could be employed in their language learning experiences, participants were provided with CT embedded language learning activities. Affecting each other mutually, CT skills and language skills went hand in hand in that the learners could benefit from their critical thought by creating new perspectives to the English learning and they could improve their capability for thinking critically with the help of their developing language skills. The teachability of CT in EFL contexts is a controversial issue in the field (e.g. Atkinson, 1997; Fox, 1994; Ramanathan & Kaplan, 1996); however, this study concluded that the EFL learners could achieve a certain level of CT provided with the CT training which was designed according to their level of proficiency in English. It was consistent with the studies supporting the necessity of CT for the nonnative speakers of

English who are handling with the complex cognitive, affective, metacognitive and cultural processes of learning a foreign language (e.g. Davidson & Dunham, 1996; Davidson, 1998; Floyd, 2011; Nanni & Wilkinson, 2014; Oda, 2008; Stapleton, 2002).

Although there are a bundle of studies with positive suggestions for the teachability of CT in EFL contexts, these have mostly investigated the effect of CT focus for university or high school students (e.g. Akdağ, 2018; Bedir, 2013; Demirbüken, 2019; Hashemi and Ghanizadeh, 2012; Lin, 2018; Karakuzular, 2013; Petek & Bedir, 2018; Wilson, 2016; Yang & Gamble, 2013). However, CT development is a lifelong journey starting from the earlier ages in native speakers; and the same should also be the case with EFL learners in order to achieve a successful CT level which is adaptable to the thinking patterns in target language, too. The necessity of CT integration to lower levels and earlier ages of EFL learners' language learning experiences is the interest for some studies (e.g. Çalışkan, 2006; Deniz, 2019; Kazancı, 2014; Uğurlu, 2010). They measured the influence of collaborative learning (Uğurlu, 2010), story dramatization (Çalışkan, 2006), and Web 2.0 tools (Kazancı, 2014) on the development of CT skills and they concluded that CT could be developed through these applications. Deniz (2009) employed an experimental study on the effectiveness of CT activities for the improvement of both CT skills and speaking proficiency levels of the $6^{th}$ grade EFL learners and her study indicated that CT training had a positive effect for learners to think critically and speak more proficiently in English. Being consistent with these studies, the present study supports the argument that CT integration to the EFL contexts with low-proficiency level secondary school learners is possible and supportive for the development of both the qualified thinking and language skills.

The studies in ELT field mostly tend to focus on CT with a reading and writing emphasis (e.g. Bağdat, 2009; Bahçe, 2012; Bedir, 2013; Davidson & Dunham, 1996; Gündüz, 2017; Güner, 2015; Fahim, Barjesteh & Vaseghi, 2011; Fahim, Bagherkazemi & Alemi,

2010; Fahim & Hashtroodi, 2012; Hashemi & Ghanizadeh, 2012; Işık, 2010; Kuek, 2010; Lin, 2018; Şenol, 2015; Turuk Kuek, 2010). This study is similar to those studies taking CT as basic focus besides its differentiation in the method. It is original in that it employed a CT embedded English course design with a full incorporation of CT to all components of language learning process. CT embedded course design is effective for the improvement of four language skills together with CT skills. One of the main implications of this study is that the learners need to be exposed to CT from the very beginning of the language learning journey as in their L1 acquisition process covering the CT skills and dispositions to form a sustainable thinking habit. Moreover, considering the fact that the education is an interdisciplinary concept, CT integration into the language courses would not be enough for this habit formation process. The disciplines should be in cooperation and CT should be the basic component of all core subjects' curricula at the national level.

The present study had an embedded mixed method research design getting benefit from both quantitative and qualitative data concurrently. It was a right decision to employ this kind of research trying to measure the influence of CT skills training in that CT is a complicated skill which should be evaluated from multiple perspectives. A pre and posttest examination of the participants on their gain of CT skills would be limited to make detailed analysis and deeper evaluations on the effectiveness of the instruction process. Qualitative data served as complementary and explanatory for the interpretation of the quantitative data.

This study was based on the integration of CT to the present language learning curriculum defined by the Ministry of National Education. The units in the book were followed and most of the topics in the book were the focus with an addition of CT emphasis. The activities were redesigned and the texts were chosen from the real life for the treatment group while the learners in the control group proceeded with the book. Maybe it would be

better to implement this study starting with a needs-assessment, continuing with the topic selection and unit determination processes.

The CT activities conducted in this study were designed based on the CT skills defined by the experts participated in the APA Delphi study on CT (Facione, 1990) and cognitive and affective thinking strategies introduced by Paul et al. (1989). The objectives for the lesson plans were chosen from their explanations of CT and required CT behaviors related to those skills. However, according to the research journal and observation checklist analyses, some of the CT skills and strategies were too above the existent language proficiency of the participants. For example, debates were planned to be administered in each unit because of their appropriateness for the development of some CT subskills. But, the learners' lack of experience in speaking the language in interactive situations and their anxiety towards expressing themselves decreased the influence of debates. The lesson plans were needed to be adapted to the current skills of the learners and the debates could be implemented starting from the middle of the process when the students began to overcome their anxiety in speaking the language. This change of plans would be prevented by making a programmed need-analysis before the instruction process.

Achievement in learning something is only possible if the learning is meaningful for the learners. Meaningfulness is a complicated and individual phenomenon that could be different for various learners with different objectives. However, in an ELT context, there could be chances for offering a wide range of experiences for the learners who want to figure out their own reasons to learn CT and reach out their own meaningfulness. For the successful guidance of students in their CT development process, it is essential to give them a reason for learning CT. In order to help learners' conceptualization of meaningful CT acquisition considering their own reasons, the learners were often, broadly and explicitly informed about the CT, CT skills, CT acquisition process, the benefits of CT for their social and academic

life, the importance of CT in language learning and the efficacy of CT embedded language learning for their individual development. Authentic interaction was an essential component of the instruction process and the learners were provided with authentic and appropriate practices of skillful thinking in real life. Through the activities which were experiences for the authentic thinking in the target language and with real or real-like materials which activated the relevant thinking skills, the learners were supported to create their own meaningfulness for learning CT.

As a compulsory and essential part of their skillful learning, CT should be enhanced in children to make them aware of the guidance of it during this process. Students' reflective diaries were a part of awareness-raising activities besides being one of the qualitative data collection ways in order to reveal the students' perceptions on CT and its improvement. However, only half of the participants managed this reflective process skillfully and contributed to the qualitative data of the study. Half of them did not hand in their diaries in the end of the process. Moreover, there were too much irrelevant data in the diaries handed in. Minute papers could be a more reflective alternative to student diaries as they would be kept just at the end of the class sessions. They could also avoid the data loss caused by forgetfulness, irresponsibility or confusion.

The success of the CT instruction process is based on the teachers' right choice of activities and materials and it is mostly related to the teachers' skillful management of the CT embedded course design. Instead of being a source of knowledge and authority in the learning process, teachers are supporters who encourage the learners' improvement and gradual independence. In order to lead students in their path to become critical thinkers, teachers should also be models with their own ways of thinking. As the CT instruction process is a kind of habit formation, the participants should be provided with every opportunity to observe and experience critical thought. The present study aimed the integration of CT to all parts of

the course including the instructor's attitudes. According to the interview data and students' diaries, the researcher could achieve to present the learners what the CT could seem with both real-life situations and her own behaviors.

CT was introduced as an important life skill to the participants; however, the CT instruction could not be widened to the out of class, full time learning opportunities through online practices because of the accessibility restrictions of some of the learners. With the consideration to keep the equality between all the learners, they were not supported with online assignments through which they could get in real CT experiences like discussing on the issues with each other or interacting with native speakers. It would be better to cover but harder to control the online opportunities and make them a part of the instruction process.

Regarded as complementary for each other, critical and creative thinking are both important elements of the qualified thinking. The researchers support the idea that "critical thinking is only valuable if we also have thinking that is constructive and creative" (De Bono, 1993, p.12). There are some efforts in ELT field to improve the creative thinking of EFL learners which have yielded for positive suggestions (e.g. Gürsoy & Bağ, 2018). The present study got benefit from the creative thinking of the learners and provided fruitful insights for the integration of CT and creative thinking. The CT capability of learners to state their conclusions, present arguments and evaluations were also affected from their creative thoughts in order to manage all these cognitive processes through a creative mind which could produce skillful ideas and connections. Supported with creative thinking, which is also an essential 21st century skill, CT training was more effective.

Even though, it tried to create a perception on CT and a habit to use it in their language learning practices, this study did not have a direct purpose for the training of the participants in developing their CT dispositions. "The assurance of excellence in professional judgment is the result of the sound use of CT skills and the reliable and strong disposition to

use those CT skills" (Facione, 2015, p.2). Considering the importance of both skills and dispositions at the same time for the development of critical thought as a habit, it would be better to include explicit focus on CT dispositions together with CT skills.

Halpern (1993) asserts that "cognitive growth is a gradual and cumulative process; there are no quick fixes" (p.241). It is important to take into consideration that CT is not a phenomenon that can be taught and internalized throughout a short process. All the efforts which could be implemented throughout one semester to improve the critical thought in learners were just a beginning of a long process which requires a willing and conscious responsibility of learners. Tim Van Gelder (2005) asserts that being a good critical thinker is as hard as to be fluent in a second language. He also states that it requires plenty of time and a conscious effort to think critically; "CT is more of lifelong journey than something picked up in a two-week module" (Van Gelder, 2005, p.42).

## 6.2. Limitations

Although the studies generally show that the CT training has a positive effect on the improvement of learners as successful thinkers, there is "little evidence on the long-term impact of instruction in CT" (Norris, 1985, p.44). Having concluded the short term effectiveness of the CT embedded English course design, the present research could not make predictions about the future effects or continuity of the learners' critical thoughts. Once having the CT skills and using them effectively, the learners should be able to internalize the thought process and they should reach the autonomy through which they can be aware of and take the responsibility for their own thinking.

According to Walsh and Paul (1986), time is an important "organizational consideration" that is needed to be taken into account carefully while planning a CT research (Walsh & Paul, 1986, p.56). He supported the idea that CT requires "a long-term commitment" starting with the training of the teachers and "gradual, more meaningful change

can occur with sustained effort" spent willingly and continuously for CT (Walsh & Paul, 1986, p.56). It is generally accepted that the longer is better for CT training (e.g. Kazancı, 2014; Reed & Kromrey, 2001; Uğurlu, 2010; Yücel, 2008). This study was limited with one semester of an educational year which made it harder to observe the long-term impacts of the sustained CT instruction.

Furthermore, the CT training was a part of the English course curriculum of a secondary school 7th grade level. The activities and materials were limited with the aims and topics of the 7th graders; however, the basics in application can be adapted to the other grade levels in secondary school and high school or to the pedagogic content of an ELT classroom in a college department.

As Dörnyei (2007) points out in his book, there are some sensitive points of educational researches in nature. One of the most sensitive of these is anonymity issues. Taking into consideration of this study, the researcher was also the practitioner of the CT training and that is a threat to the anonymity. Along with its benefits for the full commitment to the research process and for the application of the plans smoothly, the study is limited for its objectivity consideration.

**6.3. Suggestions for Further Research**

Although CT is one of the basic components in current Turkish Educational System and it is covered in the curricula of nearly all disciplines in secondary schools, there is some neglect in the application. The capabilities of the learners are overlooked or the teachers don't regard themselves as capable for the integration of CT in their regular training of the subject matter content. As one of the active participants of education process, teachers' qualifications are essential considerations for the improvement of CT in educational contexts. 21st century requires individuals to have certain skills and apart from raising individuals who can use these skills effectively, teachers should be experts in managing them perfectly both in using and

training their students to use (Petek & Bedir, 2018). It is important to note that "educational and professional success require developing one's thinking skills and nurturing one's consistent internal motivation to use those skills" (Facione, 2000, p.81). However, the studies generally emphasized that pre- and in-service EFL teachers in Turkey lack the essential CT skills that help them to employ appropriate methods and strategies to guide the learners in their language learning process (Petek & Bedir, 2015; Gürsoy, 2015; Gürsoy & Çelik Korkmaz, 2015). The present study showed that it is possible to raise the awareness in learners to integrate critical thought in their social and educational lives on condition that they are modeled and guided in the right way to observe and learn how to think critically. It's the educators' and the educational authorities' job to be perfect in the management of thinking skills and guide students in using their thinking and learning skills effectively in order to get prepared for today's and tomorrow's world. Pre-service teacher education programs and in-service training of experienced teachers should be designed according to the changing needs of educational contexts (Petek & Bedir, 2015). Further research is needed for the measurement and development of CT skills of ELT teachers in secondary schools. The present study can be expanded to cover the training of the language teachers together with the learners.

The participant experts in APA Delphi Study on CT emphasized that CT is not "a body of knowledge to be delivered to students as one more school subject along with others" (Facione, 1990, p.4). They supported the idea that it is an essential skill that should be covered "in programs rich with discipline-specific content or in programs which rely on the events in everyday life as the basis for developing one's CT" (Facione, 1990, p.4). The present research focused and questioned on the possibility of incorporation of CT in ELT curriculum of 7th grade students in a Turkish state secondary school. This effort can be adapted to all grade levels with the appropriate curricula adjustments or it can be developed as

a cooperative study between two different grade levels to detect the influence of age and other individual differences on CT development. Furthermore, it is possible to extend the study to investigate the influence of socio-economic variables for the instruction of CT by taking samples from both a state and a private school.

Students didn't have the patience and aptitude to stop and think about the issues deeply; they used to get bored or distracted easily. Even the brightest students who can think critically to express their ideas easily don't want to participate in the discussions from time to time. This may be because of the fact that they are not interested in or aware of the issues which are the focus of the discussion or simply that they don't have any idea at all. This brings the issue of the covering the CT dispositions as well as the skills (Tishman, Jay, and Perkins, 1993). Further research is needed for revealing the effectiveness of CT embedded English instruction for the learners' whole CT development covering the CT skills and CT dispositions in order to be able to internalize the thinking pattern of the target language appropriately and to make CT a habit in their language learning and use process.

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# Appendices

## Appendix 1: The Official Approval of the Institute of Educational Sciences

**T.C.**
**BURSA ULUDAĞ ÜNİVERSİTESİ REKTÖRLÜĞÜ**
**Genel Sekreterlik**

Sayı: 26468960-044/42127           13/11/2018
Konu: Hatice Kübra BAĞ'ın Uygulama İzni

### EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : 27.09.2018 tarihli ve 20585590-302.08.01/2288 sayılı yazınız.

İlgi yazınızda bahsi geçen Enstitünüz Yabancı Diller Anabilim Dalı İngiliz Dili Bilim Dalı öğrencisi Hatice Kübra BAĞ'ın "Bilişsel ve Duyuşsal Stratejileri ile Desteklenmiş İngilizce Eğitiminin Sınıflardaki Öğrencilerin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi" konulu tez çalışması kapsamında uygulanacak olan ölçek soruları Üniversitemiz Sosyal ve Beşeri Bilimler Araştırma ve Yayın Etik Kurulu'nca incelenmiş olup, alınan karar ekte gönderilmektedir.

Bilgilerinizi rica ederim.

*imza*

Prof. Dr. Mehmet YÜCE
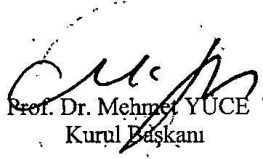Rektör a.
Rektör Yardımcısı

Ek :
Karar örneği (1 adet)

**BURSA ULUDAĞ ÜNİVERSİTESİ**
**ARAŞTIRMA VE YAYIN ETİK KURULLARI**
(Sosyal ve Beşeri Bilimler Araştırma ve Yayın Etik Kurulu)
**TOPLANTI TUTANAĞI**

| OTURUM TARİHİ | OTURUM SAYISI |
|---|---|
| 26 Ekim 2018 | 2018-09 |

**KARAR NO 1:** Eğitim Bilimleri Enstitüsü Müdürlüğü'nden alınan Yabancı Diller Anabilim Dalı İngiliz Dili Bilim Dalı öğrencisi Hatice Kübra BAĞ'ın "Bilişsel ve Duyuşsal Stratejileri ile Desteklenmiş İngilizce Eğitiminin Sınıflardaki Öğrencilerin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi" başlıklı tez çalışması kapsamında uygulanacak ölçek sorularının değerlendirilmesine geçildi.

Yapılan görüşmeler sonunda; Eğitim Bilimleri Enstitüsü Yabancı Diller Anabilim Dalı İngiliz Dili Bilim Dalı öğrencisi Hatice Kübra BAĞ'ın "Bilişsel ve Duyuşsal Stratejileri ile Desteklenmiş İngilizce Eğitiminin Sınıflardaki Öğrencilerin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi" başlıklı tez çalışması kapsamında uygulanacak ölçek sorularının, fikri, hukuki ve telif hakları bakımından metot ve ölçeğine ilişkin sorumluluğu başvurucuya ait olmak üzere uygun olduğuna oybirliği ile karar verildi.

Prof. Dr. Mehmet YÜCE
Kurul Başkanı

Prof. Dr. Abamüslim AKDEMİR
Üye

Prof. Dr. Doğan ŞENYÜZ
Üye

Prof. Dr. Kemal SEZEN
Üye

(Katılmadı)
Prof. Dr. Abdurrahman KURT
Üye

(Katılmadı)
Prof. Gülay GÖĞÜŞ
Üye

Prof. Dr. Alev SINAR UĞURLU
Üye

**Appendix 2: Bilecik Provincial Directorate of National Education Approval Letter**

ARAŞTIRMA, YARIŞMA VE SOSYAL ETKİNLİK İZİNLERİ
KOMİSYON FORMU

| Talep Sahibinin ; | | |
|---|---|---|
| Adı Soyadı | : | Hatice Kübra BAĞ |
| Kurumu/Üniversitesi | : | Uludağ Üniversitesi |
| İletişim Bilgisi | : | 4 Eylül Mahallesi 876. Sokak Paklife Sitesi Yaşam Apt. No:18 Kat: 4 Bozüyük/BİLECİK 0-506 6011844 |
| Anket/Araştırma Yapılacak Eğitim Kurumu ve Kademesi | : | Bilecik İl ve İlçe Merkezlerindeki Resmi Ortaokul ve Kurumlar |
| Anket/Araştırmanın Konusu | : | **"Bilişsel ve Duyuşsal Düşünme Stratejileri ile Desteklenmiş İngilizce Eğitiminin Sınıflardaki Öğrencilerin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi"** konulu Proje Uygulaması. |
| Uygulanma Tarih | : | 2018-2019 II. Dönem Eğitim-Öğretim Yılı |
| Veri Toplama Araçları | : | Ölçek-Anket |

| 2017/25 Nolu Genelge Kapsamındaki Usul ve Esaslar | Uygun | Uygun Değil | Açıklama |
|---|---|---|---|
| Araştırma, veri toplama araçları, yarışma ve sosyal etkinlik başvuruları; Türkiye Cumhuriyeti Anayasası ve insan hakları alanındaki uluslararası sözleşmeler başta olmak üzere 6698 sayılı Kişisel Verilerin Korunması Hakkındaki Kanun ile yürürlükte olan tüm yasal düzenlemeler ve politika belgelerine uygunluk açısından | ✓ | | |
| Araştırma, yarışma ve sosyal etkinliğin sadece BİLECİK ilinde yapılması açısından | ✓ | | |
| Araştırma, yarışma ve sosyal etkinliğin bir eğitim-öğretim yılını kapsaması | ✓ | | |
| Katılımcılardan ücret talep edilmemesi açısından | ✓ | | |
| Sosyal sorumluluk kapsamındaki araştırma, yarışma ve sosyal etkinlik başvurularına, ticari amaç güdülmemesi; kişi, kurum, kuruluş, firma, marka reklamını veya tanıtımını ön plana çıkaran ifade vc öğeler bulunmaması kaydıyla izin verilecektir. | ✓ | | |
| İzin verilen araştırma, yarışma ve sosyal etkinliklerin planlanması, tanıtılması ve uygulanması esnasında öncelikle eğitim-öğretimin aksatılmamasına dikkat edilecek ve tüm etkinliklere katılım gönüllülük esasına göre sağlanacaktır. | ✓ | | |
| İzin kapsamındaki akademik ve diğer tüm etkinliklerin denetimleri: ilgili okul, ilçe/il millî eğitim müdürlükleri tarafından gerçekleştirilecektir. | ✓ | | |

ARAŞTIRMA, YARIŞMA VE SOSYAL ETKİNLİK İZİNLERİ
KOMİSYONU

Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 22/08/2017 tarihli ve 35558626-10.06.01-E.12607291 sayılı 2017/25 Nolu Genelgede belirtilen usul ve esaslara göre değerlendirilen ve yukarıda bilgileri bulunan Hatice Kübra BAĞ'ın **"Bilişsel ve Duyuşsal Düşünme Stratejileri ile Desteklenmiş İngilizce Eğitiminin Sınıflardaki Öğrencilerin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi"** konulu Tez Çalışması ve anket çalışması uygulamasını belirtilen eğitim kurumlarında uygulamasında herhangi bir sakınca bulunmamaktadır. 04./12/2018

| Komisyon Başkanı. | | |
|---|---|---|
| Salih AYBAŞ Şube Müdürü | Leyla KALIN Üye | İlyas ÇELİK Üye |
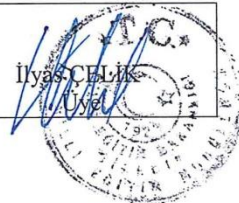
**Appendix 3: Consent for the Use of Critical Thinking Skills Scales Set by the Inventor**

## Appendix 4: Critical Thinking Skills Scales Set

## 1- Eleştirel Düşünme- Analiz Ölçeği

**Sevgili Öğrenciler;**

"Eleştirel Düşünme İle Desteklenmiş İngilizce Dersi Müfredatinin Ortaokul 7.Sinif Öğrencilerinin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi" adlı bilimsel bir çalışma yapmaktayım.  Bu amaçla sizlerden aşağıdaki sorulara içtenlikle cevap vermenizi rica eder, katılımınız için şimdiden teşekkür ederim.

**Hatice Kübra BAĞ**

1' den 8' e kadar olan sorularda her bir sorunun yanında verilen 2 ifadeyi doğru olarak kabul edin. Daha sonra bu iki ifadeden çıkan sonuç verilmiştir. Bu sonucun verilen 2 ifadeye göre **Doğru**ya da **Yanlış** olduğuna karar verip cevabı uygun boşluğa "**X**" koyarak belirtin.

1. Yandaki 2 ifadeyi doğru olarak kabul et.   - Bütün canlıların suya ihtiyacı vardır.
                                              - Çiçeklerin suya ihtiyacı vardır.

| Sonuç: Çiçekler canlıdır. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

2- Yandaki 2 ifadeyi doğru olarak kabul et.   - Bütün uçaklar uçar.
                                              - Bisikletler uçamaz.

| Sonuç: Bisikletler uçaktır. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

3- Yandaki 2 ifadeyi doğru olarak kabul et.     -İçilen her şey sağlık için yararlı değildir.
                                                -Sigara içilir.

| Sonuç: Sigara sağlık için yararlıdır. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

4- Yandaki 2 ifadeyi doğru olarak kabul et.  -Bütün 5. sınıf öğrencileri sosyal bilgiler dersi alır.
                                             -Arda 5. sınıf öğrencisidir.

| Sonuç: Arda sosyal bilgiler dersi almaz. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

5- Yandaki 2 ifadeyi doğru olarak kabul et.   - Bütün öğrenciler derslerini geçer.
                                              -Emre hayat bilgisi dersinden geçmiştir.

| Sonuç: Emre öğrenci değildir. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

6. Yandaki 2 ifadeyi doğru olarak kabul et. - Bütün evler balkonludur.
                                            - Bütün balkonlarda çiçek vardır.

| Sonuç: Bütün evlerde çiçek vardır. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

7- Yandaki 2 ifadeyi doğru olarak kabul et. - Bütün parfümler güzel kokar.
                                            - "X" parfüm değildir.

| Sonuç: "X" güzel kokar. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

8. Yandaki 2 ifadeyi doğru olarak kabul et.   - Bütün futbolcular Galatasaray' da oynar.
                                              - Fatih futbolcu değildir.

| Sonuç: Fatih Galatasaray' da oynamaz. Bu sonuç, doğru mudur, yanlış mıdır? | | DOĞRU | | YANLIŞ |
|---|---|---|---|---|

## 2- Eleştirel Düşünme -Değerlendirme Ölçeği

1' den 9' a kadar olan sorularda her bir soruda verilen görüşü doğru kabul edin. Daha sonra bu görüşün altında bulunan ifadenin, doğru olarak kabul ettiğiniz görüşü **Destekleyip Desteklemediğine** karar verip cevabınızı uygun boşluğa **X** koyarak belirtin.

**1.** Futbolda seyirci tuttuğu takımı her zaman alkışlamalıdır. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| Maçlarda oyuncular alkışa çok ihtiyaç duyarlar. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**2.** Futbolda seyirci tuttuğu takımı her zaman alkışlam alıdır.**(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| Seyirci, sadece oynanan oyunu beğendiği zaman takımı alkışlar. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**3.**Uçakla seyahat etmek arabayla seyahat etmekten çok daha tehlikelidir. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| Alkollü sürücüler arabalarda daha çok kazaya sebep olurlar. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**4.**Uçakla seyahat etmek arabayla seyahat etmekten çok daha tehlikelidir. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| Araba kazalarında uçak kazalarından daha çok kişi ölmektedir. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**5.**Bilgisayarlar insan hayatına büyük kolaylıklar getirmektedir. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| Bilgisayarlar çok sık bozulmaktadır. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**6.**Bilgisayarlar insan hayatına büyük kolaylıklar getirmektedir. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| İnsanlar işlerini bilgisayarlar sayesinde çok kısa sürede hallederler. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**7.**Televizyon programları insanlar için çok yararlıdır. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| Televizyon programları insanlara faydalı bilgiler öğretirler. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**8.**Televizyon (TV) programları insanlar için çok yararlıdır. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| Televizyon izlemek insanları tembelliğe alıştırır. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

**9.**Spor yapmak insanı daha sağlıklı yapar. **(Bu görüşü doğru olarak kabul edin)**

| | | | | |
|---|---|---|---|---|
| İnsanlar spor yaparak sakatlanırlar. **Bu cümle yukarıdaki görüşü destekler mi?** | | DESTEKLER | | DESTEKLEMEZ |

## 3-Eleştirel Düşünme – Çıkarım Ölçeği

1' den 8' e kadar olan sorularda her soruda bir bilgi verilmiştir. Bu bilgiyi okuduktan sonra verilen bilginin altında yazan cümlenin, verilen bilgiye göre **Doğru**ya da **Yanlış** olduğuna karar verip cevabınızı uygun boşluğa **X** koyarak belirtin.

**1. Ülkemizde okuma yazma bilen insan sayısı her geçen yıl artmaktadır.**

| | | | |
|---|---|---|---|
| Ülkemizde okuyup yazan insan sayısı geçen yıl, bu yılkinden daha azdır. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

**2- Ülkemizde okuma yazma bilen insan sayısı her geçen yıl artmakta dır.**

| | | | |
|---|---|---|---|
| Ülkemizde bu yıl, önceki yıllardan daha az insan okula gitmektedir. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

**3. Ülkemizde okuma yazma bilen insan sayısı her geçen yıl artmakta dır.**

| | | | |
|---|---|---|---|
| Ülkemizde okuma yazma bilmeyenlerin sayısı sürekli azalmaktadır. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

**4- Ülkemizde okuma yazma bilen insan sayısı her geçen yıl artmakta dır.**

| | | | |
|---|---|---|---|
| Ülkemizde bu yıl önceki yıllara göre okul sayısı azalmıştır. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

**5- Ülkemizde okuma yazma bilen insan sayısı her geçen yıl artmakta dır.**

| | | | |
|---|---|---|---|
| Ülkemizde okuma yazma öğrenmek zorlaşmıştır. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

**6. Ülkemizde hastalıktan ölen insan sayısı her geçen yıl azalmaktadır .**

| | | | |
|---|---|---|---|
| Ülkemizde her yıl sağlık hizmetleri daha çok iyileşmektedir. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

**7- Ülkemizde hastalıktan ölen insan sayısı her geçen yıl azalmaktadır .**

| | | | |
|---|---|---|---|
| Ülkemizde her geçen yıl doktor sayısı azalmaktadır. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

**8- Ülkemizde hastalıktan ölen insan sayısı her geçen yıl azalmaktadır .**

| | | | |
|---|---|---|---|
| Ülkemizde her geçen yıl ölen insan sayısı artmaktadır. <br> **Bu çıkarım, yukarıdaki bilgiye göre doğru mudur?** | | **DOĞRU** | **YANLIŞ** |

## 4-Eleştirel Düşünme –Yorumlama Ölçeği

**ARDA' NIN BİR GÜNÜ**

Arda, ilköğretim 5. sınıf öğrencisidir. O gün, okuldan eve geldiğinde annesi ona bir alışveriş listesi vermişti. Listede ekmek, gazete, yumurta, peynir, zeytin ve kıyma vardı. Arda, hemen markete gitti. 1 TL'lik ekmek, 2 TL'lik yumurta, 2 TL'lik peynir ve 2 TL'lik de zeytin aldı. Ardından gazete bayisinden 2 gazete aldı. Sonra köşedeki kasaba gitti ve 6,5 TL'lik kıyma aldı. Böylece, annesinin verdiği listedeki her şeyi almıştı. Cebinde 1TL arttığını görünce tekrar markete uğrayıp kendine o parayla çikolata aldı ve eve geldi.

Eve geldiğinde annesi, Arda'nın aldıklarını kontrol etti. Her şeyi aldığını gördü, fakat istediği gazetelerden farklı gazeteleri aldığını fark etti. Arda, dalgınlıkla Milliyet ve Hürriyet gazetelerini almıştı, hâlbuki evlerinde Sabah ve Akşam gazeteleri okunurdu. Annesi, para artıp artmadığını sorduğunda Arda, hiç para artmadığını söyledi. Bu arada telefon çaldı ve telefonu Arda açtı. Babaannesiydi arayan ve "Evde iseler onlara ziyarete geleceklerini" söylemişti. Arda çok mutlu oldu babaannesinin evlerine gelecek olmasından. Bunun üzerine annesi, Arda' ya tekrar para verip taze çekirdek, leblebi, fıstık, badem, meyve suyu ile kuru pasta almasını ve aldığı gazeteleri değiştirmesini söyledi. Arda, koşarak evden çıktı. Çünkü babaannesi gelmeden Arda'nın alış-verişini bitirmesi gerekiyordu. Önce gazete bayisine gitti ve gazeteleri değiştirdi. Sonra kuruyemişçiye uğradı ve toplam 1 kilogramlık çekirdek, leblebi, fıstık ve badem aldı. Oradan markete geçti ve 1 litrelik şeftali suyu aldı. Son olarak da pastaneden 2 kilogramlık kuru pasta aldı ve "oh bee, bu alışverişten de bütün mahalle esnafları para kazandı, ama keşke bir kardeşim olsaydı da, alış-verişlere o gitseydi" diye söylene söylene eve döndü.

Arda, eve geldikten 15 dakika sonra babaannesi ve halası Ardalara geldi. Arda'nın kuzenleri Doğukan ve Emre de öğlenci olduklarından onlardan 15 dakika sonra Ardalara geldiler. Çünkü okuldan yeni çıkmışlardı. Doğukan, Emre ve Arda hemen bilgisayarın başına geçtiler. Yarımşar saat oynadıktan sonra bahçeye inip top oynadılar. Arda, 2 alış-veriş macerası sonrası çok yorulduğu için kaleye geçti. Doğukan ve Emre, Arda'nın halasının çocukları olduğu için kardeş gibiydiler ve çok iyi anlaşıyorlardı. 1 saat top oynadıktan sonra eve dönüp TV izlediler…

1' den 10' a kadar olan soruları yukarıda verilen "**Arda'nın Bir Günü**" başlıklı metni dikkatli okuduktan sonra metne göre cevaplayın. Her bir sorunun altında 4 seçenek verilmiştir. **Doğru** bulduğunuz seçeneği işaretleyin.

**1. Sence annesi niçin sürekli alış-verişe Arda'yı göndermektedir?**
**a-**Arda, ilköğretim 5. sınıf öğrencisi olduğu için.
**b-**Arda, okuldan çıktıktan sonra alış-veriş yapmayı çok sevdiği için.
**c-**Arda, alış-verişlerde hiç hata yapmadığı için.
**d-**Arda'nın başka kardeşi olmadığı için.

**2. Sence niçin Arda annesinin istediğinden farklı gazeteleri almıştır?**
**a-**Parası o gazeteleri almaya yettiği için.
**b-**Annesinin istediği gazeteleri sevmediği için.
**c-**Kendi aldığı gazeteleri okumayı sevdiği için.
**d-**Gazeteleri alırken dalgın olduğu için.

**3. Sence niçin annesi, para artıp artmadığını sorduğunda Arda, hiç para artmadığını söyledi?**
**a-** Yalan söylemeyi sevdiği için.
**b-** Hesap yapmayı bilmediği için.
**c-**Hiç para artmadığı için.
**d-** Çikolata aldığını unuttuğu için.

**4. Sence neden Doğukan, Emre ve Arda farklı zamanlarda okuldan çıkmışlardı?**
**a-** Okulları farklı olduğu için.
**b-** Arda sabahçı, Doğukan ve Emre de öğlenci oldukları için.
**c-** Sınıfları farklı olduğu için.
**d-** Doğukan ve Emre sabahçı, Arda da öğlenci olduğu için.

**5. Arda'nın annesi, Arda'nın babaannesinin geleceğini öğrendikten sonra neden Arda'yı bir daha alış-verişe gönderdi?**
**a-** Arda'nın yanlış aldığı gazeteleri değiştirmesi için.
**b-** Arda'nın babaannesini daha iyi ağırlamak için.
**c-** Evde taze çekirdek, leblebi, fıstık, badem, meyve suyu ile kuru pasta olmadığı için.
**d-** Arda'nın babaannesi taze çekirdek, leblebi, fıstık, badem, meyve suyu ile kuru pastayı çok sevdiği için.

**6. Arda, neden ilk alışverişte gazete ve kıyma, ikinci alışverişte de kuruyemiş ve kuru pastayı marketten almamıştır?**
**a-** Arda'nın canı öyle istediği için.
**b-** Kasapta, kuruyemişçide ve pastanede daha taze ürünler satıldığı için.
**c-** Markette gazete, kıyma, kuruyemiş ve kuru pasta satılmadığı için.
**d-** Arda, yaptığı alış-verişlerde bütün mahalle esnafının para kazanmasını istediği için.

**7. Doğukan ve Emre, niçin Arda'yla çok iyi anlaşıyorlardı?**
**a-** Akraba oldukları için.
**b-** Çocuk oldukları için.
**c-** Misafir oldukları için.
**d-** Birlikte oyun oynadıkları için.

**8. Sence niçin Arda ikinci alış-verişini koşarak yaptı?**
**a-** Koşmayı çok sevdiği için.
**b-** Her işini hızlı yapmayı sevdiği için.
**c-** Babaannesi evlerine geleceği için.
**d-** Ders çalışacağı için.

**9. Sence niçin ilk alış-veriş sonunda annesi, Ardanın aldıklarını kontrol etmesine rağmen ikincisinde kontrol etmedi?**
**a-** Unuttuğu için.
**b-** Arda'nın babaannesi geleceğinden hazırlık yaptığı için.
**c-** Arda'ya güvendiği için.
**d-** Arda'nın ikinci kez yanlış gazeteleri almayacağını düşündüğü için.

**10. Babaannesi niçin gelmeden önce Ardaları telefonla aradı?**
**a-** Evde olup olmadıklarını öğrenmek için.
**b-** Hatırlarını sormak için.
**c-** Bir şey isteyip istemediklerini öğrenmek için.
**d-** Arda'yla konuşmak için.

## 5-Eleştirel Düşünme – Açıklama Ölçeği

**ARDA' NIN BİR GÜNÜ**

Arda, ilköğretim 5. sınıf öğrencisidir. O gün, okuldan eve geldiğinde annesi ona bir alışveriş listesi vermişti. Listede ekmek, gazete, yumurta, peynir, zeytin ve kıyma vardı. Arda, hemen markete gitti. 1 TL'lik ekmek, 2 TL'lik yumurta, 2 TL'lik peynir ve 2 TL'lik de zeytin aldı. Ardından gazete bayisinden 2 gazete aldı. Sonra köşedeki kasaba gitti ve 6,5 TL'lik kıyma aldı. Böylece, annesinin verdiği listedeki her şeyi almıştı. Cebinde 1TL arttığını görünce tekrar markete uğrayıp kendine o parayla çikolata aldı ve eve geldi.

Eve geldiğinde annesi, Arda'nın aldıklarını kontrol etti. Her şeyi aldığını gördü, fakat istediği gazetelerden farklı gazeteleri aldığını fark etti. Arda, dalgınlıkla Milliyet ve Hürriyet gazetelerini almıştı, hâlbuki evlerinde Sabah ve Akşam gazeteleri okunurdu. Annesi, para artıp artmadığını sorduğunda Arda, hiç para artmadığını söyledi. Bu arada telefon çaldı ve telefonu Arda açtı. Babaannesiydi arayan ve "Evde iseler onlara ziyarete geleceklerini" söylemişti. Arda çok mutlu oldu babaannesinin evlerine gelecek olmasından. Bunun üzerine annesi, Arda' ya tekrar para verip taze çekirdek, leblebi, fıstık, badem, meyve suyu ile kuru pasta almasını ve aldığı gazeteleri değiştirmesini söyledi. Arda, koşarak evden çıktı. Çünkü babaannesi gelmeden Arda'nın alış-verişini bitirmesi gerekiyordu. Önce gazete bayisine gitti ve gazeteleri değiştirdi. Sonra kuruyemişçiye uğradı ve toplam 1 kilogramlık çekirdek, leblebi, fıstık ve badem aldı. Oradan markete geçti ve 1 litrelik şeftali suyu aldı. Son olarak da pastaneden 2 kilogramlık kuru pasta aldı ve "oh bee, bu alışverişten de bütün mahalle esnafları para kazandı, ama keşke bir kardeşim olsaydı da, alış-verişlere o gitseydi" diye söylene söylene eve döndü.

Arda, eve geldikten 15 dakika sonra babaannesi ve halası Ardalara geldi. Arda'nın kuzenleri Doğukan ve Emre de öğlenci olduklarından onlardan 15 dakika sonra Ardalara geldiler. Çünkü okuldan yeni çıkmışlardı. Doğukan, Emre ve Arda hemen bilgisayarın başına geçtiler. Yarımşar saat oynadıktan sonra bahçeye inip top oynadılar. Arda, 2 alış-veriş macerası sonrası çok yorulduğu için kaleye geçti. Doğukan ve Emre, Arda'nın halasının çocukları olduğu için kardeş gibiydiler ve çok iyi anlaşıyorlardı. 1 saat top oynadıktan sonra eve dönüp TV izlediler…

1' den 9' a kadar olan soruları yukarıda verilen ve okuduğunuz "**Arda'nın Bir Günü**" başlıklı metne göre cevaplayın. Her bir sorunun altında 4 seçenek verilmiştir. **Doğru** bulduğunuz seçeneği işaretleyin.

**1. Arda yaptığı alış-verişlerde en çok nereye uğramıştır?**
**a-**Kasaba uğramıştır.
**b-**Gazete bayisine uğramıştır.
**c-**Markete uğramıştır.
**d-** Kuruyemişçiye uğramıştır.

**2. Doğukan, Emre ve Arda toplam kaç saat oyun oynamışlardır?**
**a-** 1 saat oyun oynamışlardır.
**b-** 2 saat oyun oynamışlardır.
**c-**2.5 saat oyun oynamışlardır.
**d-** 1.5 saat oyun oynamışlardır.

**3. Arda, okuldan eve geldikten sonra toplam kaç kere dışarı çıkmıştır?**
**a-** 1 kere dışarı çıkmıştır.
**b-** 2 kere dışarı çıkmıştır.
**c-** 3 kere dışarı çıkmıştır.
**d-** 4 kere dışarı çıkmıştır.

**4. Doğukan ve Emre ile Arda arasındaki akrabalık bağı nedir?**
**a-** Arda'nın babasıyla Doğukan ve Emre'nin anneleri kardeştir.
**b-** Arda'nın annesiyle Doğukan ve Emre'nin babaları kardeştir.
**c-** Arda'nın babasıyla Doğukan ve Emre'nin babaları kardeştir.
**d-** Arda'nın annesiyle Doğukan ve Emre'nin anneleri kardeştir.

**5. Arda'nın yaptığı ilk alış-verişte aldığı ürünlerin hangisi annesinin verdiği liste yoktu?**
**a-** Ekmek yoktu.
**b-** Kıyma yoktu.
**c-** Yumurta yoktu.
**d-** Çikolata yoktu.

**6. Arda, alış-verişlerinin hangisini fiyata (TL) göre, hangisini ağırlığa (kilogram-litre) göre yapmıştır?**
**a-** İlk alış-verişini ağırlığa (kilogram-litre) göre, ikinci alış-verişini ise fiyata (TL) göre yapmıştır.
**b-** İlk alış-verişini fiyata (TL) göre, ikinci alış-verişini de fiyata (TL) göre yapmıştır.
**c-** İlk alış-verişini ağırlığa (kilogram-litre) göre, ikinci alış-verişini de ağırlığa (kilogram-litre) göre yapmıştır.
**d-** İlk alış-verişini fiyata (TL) göre, ikinci alış-verişini ise ağırlığa (kilogram-litre) göre yapmıştır.

**7. Annesi yanlış aldığını söyleyince Arda hangi gazeteleri değiştirmeye gitti?**
**a-** Milliyet ve Sabah gazetelerini değiştirmeye gitti.
**b-** Sabah ve Akşam gazetelerini değiştirmeye gitti.
**c-** Hürriyet ve Akşam gazetelerini değiştirmeye gitti.
**d-** Milliyet ve Hürriyet gazetelerini değiştirmeye gitti.

**8. "Arda'nın Bir Günü" başlıklı metne göre Ardaların mahallesinde bulunan esnaflar işyerleri hangileridir?**
**a-** Kasap, kuruyemişçi, pastane ve manav.
**b-** Manav, gazete bayisi, kasap, kuruyemişçi ve pastane.
**c-** Berber, gazete bayisi, kasap ve kuruyemişçi.
**d-** Market, gazete bayisi, kasap, kuruyemişçi ve pastane.

**9. Doğukan, Emre ve Arda bahçeye top oynamaya indiklerinde Arda neden kaleye geçmek istemiştir?**
**a-** Doğukan ve Emre öyle istediği için Arda kaleye geçmek istemiştir.
**b-** Arda iki kere alış-verişe koşarak gittiğinden bir daha koşup yorulmamak için kaleye geçmek istemiştir.
**c-** Arda futbolda her zaman kalecilik yaptığı için kaleye geçmek istemiştir.
**d-** Bir kişinin oyun esnasında kaleye geçmesi gerektiği için Arda kaleye geçmek istemiştir.

## 6- Eleştirel Düşünme – Öz düzenleme Ölçeği

1' den 12' ye kadar olan sorularda çeşitli davranışlar sıralanmıştır. Bu davranışları yapıp yapmadığınızı ve ne sıklıkta yaptığınızı (her zaman – bazen – hiçbir zaman) uygun boşluğa **X** koyarak belirtin.

| DAVRANIŞLAR | | HER ZAMAN | BAZEN | HİÇBİR ZAMAN |
|---|---|---|---|---|
| **1-** | Birisi benim yaptığım işlemlerden farklı bir yol önerdiğinde düşünmeden reddederim. | | | |
| **2-** | Bir problemi çözerken birden fazla doğru yol bulmaya çalışırım. | | | |
| **3-** | Karar verirken duygularıma göre davranırım. | | | |
| **4-** | Çalışırken anlayamadığım şeyleri öğrenmek için çabalarım. | | | |
| **5-** | Kendi fikirlerim ile başkalarının fikirlerini karşılaştırırım. | | | |
| **6-** | Haklı olduğumu düşünürsem başkalarının fikirlerini dinlemem. | | | |
| **7-** | Sınavlarda hata yaptığımda nerede hata yaptığımı anlamaya çalışırın. | | | |
| **8-** | Zor durumda kaldığımda başkalarından yardım istemem. | | | |
| **9-** | Basit problemleri çözmek yerine, zor problemleri çözmeyi tercih ederim. | | | |
| **10-** | Yeni çözümler üretmeyi gerektiren problemlerle daha çok ilgilenirim. | | | |
| **11-** | Çok fazla düşünmemi gerektiren işlerden kaçarım. | | | |
| **12-** | Bir problemi çözerken, çözümün nasıl olacağını önce başka birine sorarım. | | | |

**Appendix 5: Parent Consent Form**

Sayın Veli;

Çocuğunuzun da içinde yer alacağı *"Bilişsel ve Duyuşsal Düşünme Stratejileri ile Desteklenmiş İngilizce Eğitiminin Sınıflardaki Öğrencilerin Eleştirel Düşünme Becerilerini Geliştirmeye Etkisi"* adıyla bir araştırma çalışması yürütmekteyim.

Araştırmanın hedefi öğrencilerin İngilizce dersinde kullanmış oldukları eleştirel düşünme beceri düzeylerini saptamak ve bilişsel ve duyuşsal düşünme stratejileri ile desteklenmiş İngilizce eğitimi yoluyla eleştirel düşünmelerini geliştirmektir. Çalışma, İngilizce dersi sırasında müfredatı eleştirel düşünme temelli etkinliklerle destekleyerek öğrencilerin eleştirel düşünmelerini ve sonuç olarak İngilizce seviyelerini geliştirmeyi amaçlamaktadır.

Araştırmada öğrencilerin eleştirel düşünme düzeylerini saptamak amacı ile ön ve son test uygulanacak ve eğitim süresince gözlem, ders günlükleri, ses kayıtları gibi veri toplama araçları kullanılacaktır.

Araştırma T.C. Milli Eğitim Bakanlığı'nın ve okul yönetiminin de izni ile gerçekleşmektedir. Araştırma uygulamasına katılım tamamıyla gönüllülük esasına dayalı olmaktadır. Çocuğunuz çalışmaya katılıp katılmamakta özgürdür. Araştırma çocuğunuz için herhangi bir istenmeyen etki ya da risk taşımamaktadır. Çocuğunuzun katılımı **tamamen sizin isteğinize bağlıdır**, reddedebilir ya da herhangi bir aşamasında ayrılabilirsiniz. Araştırmaya katılmamama veya araştırmadan ayrılma durumunda öğrencilerin akademik başarıları, okul ve öğretmenleriyle olan ilişkileri etkilemeyecektir.

Çalışmada öğrencilerden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplar tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir.

Uygulamalar, genel olarak kişisel rahatsızlık verecek sorular ve durumlar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden çocuğunuz kendisini rahatsız hissederse cevaplama işini yarıda bırakıp çıkmakta özgürdür. Bu durumda rahatsızlığın giderilmesi için gereken yardım sağlanacaktır. Çocuğunuz çalışmaya katıldıktan sonra istediği an vazgeçebilir. Böyle bir durumda veri toplama aracını uygulayan kişiye, çalışmayı tamamlamayacağını söylemesi yeterli olacaktır. Anket çalışmasına

katılmamak ya da katıldıktan sonra vazgeçmek çocuğunuza hiçbir sorumluluk getirmeyecektir.

Onay vermeden önce sormak istediğiniz herhangi bir konu varsa sormaktan çekinmeyiniz. Çalışma bittikten sonra bana telefon veya e-posta ile ulaşarak soru sorabilir, sonuçlar hakkında bilgi isteyebilirsiniz.

Saygılarımla,

Araştırmacı : Hatice Kübra BAĞ

İletişim bilgileri : 0566011844 kbrayhn20@gmail.com

*Velisi bulunduğum .................. sınıfı ................ numaralı öğrencisi ...............................*
*………………………….'in yukarıda açıklanan araştırmaya katılmasına izin veriyorum.*
(Lütfen formu imzaladıktan sonra çocuğunuzla okula geri gönderiniz*).

….../…../…………

İsim-Soyisim İmza:

Veli Adı-Soyadı :

Telefon Numarası :

**Appendix 6: Interview questions**

*Interview questions*

1.   How do you evaluate your English success during the term? What affects your success?

2.   In your opinion, is there a relationship between your thinking and English success?

3.   Do you think the English course motivates you to think more critically?

4.   What do you think about your English teacher's attitude this term?

5.   What do you think about the English course activities this term?

6.   What are the most effective activities that help you to think critically? *(Group presentations, debates, problem solving, "where is the text from", critical reading and listening, jigsaw, concept maps, mind maps, critical writing activities, guessing activities, determining fact and opinion sentences, evaluating the reliability of sources, keeping diaries, self, peer, group assessments, … etc.)*

7.   What are the least effective activities that help you to think critically? *(Group presentations, debates, problem solving, "where is the text from", critical reading and listening, jigsaw, concept maps, mind maps, critical writing activities, guessing activities, determining fact and opinion sentences, evaluating the reliability of sources, keeping diaries, self, peer, group assessments, … etc.)*

8.   Do you think the English course help you assess yourself and your friends?

9.   Is there any method or activity that you have learnt this term and you want to use for your future English courses?

10. Is there any method or activity that you have learnt this term and you want to use for your other courses?

11. What are your suggestions and expectations on the specific English course, your thinking training, activities and teacher attitudes?

**Appendix 7: Observation Checklist**

| | | | | | |
|---|---|---|---|---|---|
| **INTERPRETATION** | **Categorization** | to recognize a problem and define its character without prejudice to inquiry | | | |
| | | to determine a useful way of sorting and sub-classifying information | | | |
| | | to make an understandable report of what one experienced in a given situation | | | |
| | | to classify data, findings or opinions using a given classification schema | | | |
| | **Decoding Significance** | to detect and describe a person's purposes in asking a given question | | | |
| | | to appreciate the significance of a particular facial expression or gesture used in a given social situation; | | | |
| | | to discern the use of irony or rhetorical questions in debate; | | | |
| | **Clarifying Meaning** | to restate what a person said using different words or expressions while preserving that person's intended meanings | | | |
| | | to find an example which helps explain something to someone | | | |
| | | to develop a distinction which makes clear a conceptual difference or removes a troublesome ambiguity | | | |
| **ANALYSIS** | **Examining ideas** | to identify a phrase intended to trigger a sympathetic emotional response which might induce an audience to agree with an opinion | | | |
| | | to examine closely related proposals regarding a given problem and to determine their points of similarity and divergence | | | |
| | | given a complicated assignment, to determine how it might be broken up into smaller, more manageable tasks | | | |
| | | to define an abstract concept. | | | |
| | **Detecting arguments** | given a set of statements, descriptions, questions or graphic representations, to determine whether or not the set expresses, or is intended to express, a reason or reasons in support of or contesting some claim, opinion or point of view. | | | |
| | **Analyzing arguments** | to identify and differentiate the intended main conclusion | | | |
| | | to identify and differentiate the premises and reasons advanced in support of the main conclusion | | | |
| | | to identify and differentiate additional unexpressed elements of that reasoning, such as intermediary conclusions, unstated assumptions or presuppositions | | | |
| **EVALUATION** | **Assessing claims** | to assess the contextual relevance of questions, information, principles, rules or procedural directions | | | |
| | | to assess the acceptability, the level of confidence to place in the probability or truth of any given representation of an experience, situation, judgment, belief or opinion | | | |
| | **Assessing arguments** | to anticipate or to raise questions or objections, and to assess whether these point to significant weakness in the argument being evaluated | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | to determine whether an argument relies on false or doubtful assumptions or presuppositions and then to determine how crucially these affect its strength | | | |
| | | to judge between reasonable and fallacious inferences | | | |
| | | to determine the extent to which possible additional information might strengthen or weaken an argument. | | | |
| **INFERENCE** | **Querying evidence** | in particular, to recognize premises which require support and to formulate a strategy for seeking and gathering information which might supply that support | | | |
| | **Conjecturing alternatives** | to formulate multiple alternatives for resolving a problem, | | | |
| | | to postulate a series of suppositions regarding a question, to project alternative hypotheses regarding an event, to develop a variety of different plans to achieve some goal | | | |
| | **Drawing conclusions** | to apply appropriate modes of inference in determining what position, opinion or point of view one should take on a given matter or issue. | | | |
| | | to determine which of several possible conclusions is most strongly warranted or supported by the evidence at hand, or which should be rejected or regarded as less plausible by the information given | | | |
| **EXPLANATION** | **Stating results** | to produce accurate statements, descriptions or representations of the results of one's reasoning activities so as to analyze, evaluate, infer from, or monitor those results | | | |
| | **Justifying procedures** | to present the evidential, conceptual, methodological, criteriological and contextual considerations which one used in forming one's interpretations, analyses, evaluation or inferences, so that one might accurately record, evaluate, describe or justify those processes to one's self or to others, or to remedy perceived deficiencies in the general way one executes those processes | | | |
| | **Presenting arguments** | to give reasons for accepting some claim. | | | |
| **SELF-REGULATION** | **Self-examination** | to reflect on one's own reasoning and verify both the results produced and the correct application and execution of the cognitive skills involved | | | |
| | | to make an objective and thoughtful meta-cognitive self-assessment of one's opinions and reasons for holding them | | | |
| | | to judge the extent to which one's thinking is influenced by deficiencies in one's knowledge, or by stereotypes, prejudices, emotions or any other factors which constrain one's objectivity or rationality | | | |
| | | to reflect on one's motivations, values, attitudes and interests with a view toward determining that one has endeavored to be unbiased, fair-minded, thorough, objective, respectful of the truth, reasonable, and rational in coming to one's analyses, interpretations, evaluations, inferences, or expressions. | | | |
| | **Self-correction** | where self-examination reveals errors or deficiencies, to design reasonable procedures to remedy or correct, if possible, those mistakes and their causes. | | | |

**Appendix 8: Sample Lesson Plans for Each Unit**

| UNIT 1 –APPEARANCE AND PERSONALITY     (Week 4 – Lesson 2) | |
|---|---|
| **Class:** 7th grades – Treatment Group (31 Students)               **Duration:** 40+40 – 80' | |
| **Lesson Objectives:** | |
| **MAIN SKILLS** | **CRITICAL THINKING SKILLS** |
| **Listening:** E7.1.L1. Students will be able to understand clear, standard speech on appearances and personalities. <br><br>**Spoken Interaction:** E7.1.SI1. Students will be able to talk about other people's appearances and personalities <br><br>**Spoken Production:** Spoken Production E7.1.SP1. Students will be able to report on appearances and personalities of other people. <br><br>**Reading:** E7.1.R1. Students will be able to understand a simple text about appearances and personalities, and make simple comparisons. <br><br>**Writing:** E7.1.W1. Students will be able to write simple pieces to compare people. | **Interpretation:** Ss.'ll be able (a) to appreciate the significance of a particular facial expression or gesture used in a given social situation, (b) to find an example which helps explain something to someone <br>**Analysis:** given a set of statements, descriptions, questions or graphic representations, students will be able to determine whether or not the set expresses, or is intended to express, a reason or reasons in support of or contesting some claim, opinion or point of view <br>**Evaluation:** Ss.'ll be able to assess the acceptability, the level of confidence to place in the probability or truth of any given representation of an experience, situation, judgment, belief or opinion, (b) to determine whether an argument relies on false or doubtful assumptions or presuppositions and then to determine how crucially these affect its strength <br>**Inference:** Ss.'ll be able to apply appropriate modes of inference in determining what position, opinion or point of view one should take on a given matter or issue. <br>**Explanation**: Ss.'ll be able to give reasons for accepting some claim. <br>**Self-regulation:** Ss.'ll be able to reflect on one's own reasoning and verify both the results produced and the correct application and execution of the cognitive skills involved |
| **CRITICAL THINKING STRATEGIES: S1, S2, S5, S6, S9, S11, S12, S13, S15, S18, S22, S25, S26, S30, S31** | |
| **Procedure:** <br>Students will be shown different part of the bodies (mouth, hands, eyes) of different people. They will be able to guess and describe the whole appearance and personality from the small parts. <br>Students will be separated in peers. One student will see the picture on the screen and describe the physical appearance of the person. The other student will listen to the descriptions and draw a picture of the person with his/her peer's guidance. In the end, all peers' works were evaluated within the whole class and the learners will be able to present their inferences about the personality of the person in the picture. They will fill in short peer-evaluation forms in the end. <br>Students will be separated in groups of five. They will be able to prepare a brief description on their chosen famous figure. They will present their figures' personalities and appearances and the class will try to guess the people and evaluate their friends' performance through group evaluation forms. | |
| Students will watch a video based on the differences of teenagers. They will attend a fact or opinion activity in which they will be able to categorize the statements. <br>Related to the topic and inferences of the video, students will be able to discuss in groups of five on what makes them as unique individuals in social life and they will present their arguments to other groups. <br>Students will be able to create imaginary dialogues in groups by analyzing the type of behaviors based on the given personality traits to them. They will present their dialogues to their friends and they will evaluate the performance of other groups while watching them. | |
| **Assessment:** Students will complete self-, peer- and group- evaluation forms. They will be assigned to broaden their famous figure descriptions for their portfolios. | |

**UNIT 2 -SPORTS    (Week 5 – Lesson 1)**

| **Class:** 7th grades – Treatment Group (31 Students) | **Duration:** 40+40 – 80' |
|---|---|

**Lesson Objectives:**

| **MAIN SKILLS** | **CRITICAL THINKING SKILLS** |
|---|---|
| **Listening: E7.2.L1.** Students will be able to recognize frequency adverbs in simple oral texts.<br>**Spoken Interaction: E7.2.SI1.** Students will be able to ask questions related to the frequency of events.<br>**Spoken Production: E7.2.SP1.** Students will be able to talk about routines/daily activities by using frequency adverbs and giving explanations and reasons.<br>**Reading: E7.2.R1.** Students will be able to understand short and simple texts on sports.<br>**Writing: E7.2.W1.** Students will be able to write pieces about routines/daily activities by using frequency adverbs. | **Interpretation:** Students will be able to classify the sports under different categories, to appreciate the significance of certain facial expressions and gestures in a picture, to find an example which helps explain something to someone.<br>**Analysis:** Students will be able to examine related proposals regarding a given problem and to determine their points of similarity and divergence, to determine whether or not the given set of text groups expresses a reason in support of or contesting some claim, to identify and differentiate the intended main conclusion.<br>**Evaluation:** Students will be able to assess the contextual relevance of information, to judge between reasonable and fallacious inferences.<br>**Inference:** Students will be able to postulate a series of suppositions regarding a question, to determine which of several possible conclusions is most strongly warranted or supported by the evidence.<br>**Explanation**: Students will be able to produce accurate descriptions of the results of their reasoning activities so as to analyze results.<br>**Self-regulation:** Students will be able to make an objective and thoughtful metacognitive self-assessment, to design reasonable procedures to remedy or correct their mistakes and their causes**.** |

**CRITICAL THINKING STRATEGIES: S1, S5, S9, S10, S14, S21, S23, S29, S31**

**Procedure:**

Recognizing the context: Students will be shown a picture related to the sports and they will be asked to describe the picture and guess the context of the reading passages.  Then they will be shown a couple of parkour pictures and a parkour video. They will be asked to express their opinions about the sport and to list the rules of the sport according to the video.

Students will be asked to scan the paragraphs about parkour, order them to make a meaningful text and write headlines for each paragraph.

They will be asked to write the rules for parkour and supported to think of different sports where they run, jump, roll, climb and swing and talk about them.

Students will be asked to categorize the sports under different categories "team, individual, extreme, outdoor, indoor, water, sky, winter, etc."

Students will be shown different texts about sports and they'll be asked to guess the type of the texts for each sport shown. Then they'll recognize the different text types related to the sports and they'll name the type of the text in their books.

Students will read the brochure in their book and recognize the information about a certain kind of sport. Then they will be asked to create a concept map about a sport they'll choose containing the information about place, equipment, rules for that sport.

**Assessment:** Students will put their concept maps' extended version on their portfolio.

**UNIT 3 –BIOGRAPHIES    (Week 8 – Lesson 1)**

| **Class:** 7th grades – Treatment Group (31 Students) | **Duration:** 40+40 – 80' |
|---|---|

**Lesson Objectives:**

| **MAIN SKILLS** | **CRITICAL THINKING SKILLS** |
|---|---|
| **Listening:** E7.3.L1. Students will be able to recognize specific information in oral texts dealing with past events and dates.<br>**Spoken Interaction:** E7.3.SI1. Students will be able to talk about past events with definite time.<br>**Spoken Production:** E7.3.SP1. Students will be able to describe past events and experiences.<br>**Reading:** E7.3.R1. Students will be able to spot specific information about names and dates in past events in written texts.<br>**Writing:** E7.3.W1. Students will be able to write a short and simple report about past events. | **Interpretation:** Ss.'ll be able to make an understandable report of what one experienced in a given situation<br>**Analysis:** given a complicated assignment, to determine how it might be broken up into smaller, more manageable tasks<br>**Evaluation:** Ss.'ll be able to assess the contextual relevance of questions, information, principles, rules or procedural directions<br>**Inference:** Ss.'ll be able (a) to apply appropriate modes of inference in determining what position, opinion or point of view one should take on a given matter or issue (b) to determine whether an argument relies on false or doubtful assumptions or presuppositions and then to determine how crucially these affect its strength<br>**Explanation**: Ss.'ll be able to produce accurate statements, descriptions or representations of the results of one's reasoning activities so as to analyze, evaluate, infer from, or monitor those results<br>**Self-regulation:** Ss.'ll be able to design reasonable procedures to remedy or correct, if possible, those mistakes and their causes where self-examination reveals errors or deficiencies, |

**CRITICAL THINKING STRATEGIES: S5, S7, S9, S12, S14, 16, S18, S21, S22, S23, S28, S31, S32, S33**

**Procedure:**
Students will be shown different pictures of Abraham Lincoln and they will be asked to try to guess who he may be.
Students will be shown small excerpts from different texts (film, documentary, new, biography, novel etc.) related to Abraham Lincoln. They will be asked to figure out where the texts are from. They will be asked to evaluate the reliability of these texts and give them numbers from 1 to 5.
After reading the written biographical text, they will be asked to analyze the statements in the texts as facts, inferences or opinions. Based on their knowledge from the biographical reading text, they will be asked to check out their reliability scores.
Students will be able to watch a mini documentary supporting the reading text about slavery and Abraham Lincoln. They will be separated in groups and asked to make a short group discussion on slavery, its causes and effects to the social life and children. The groups will share their arguments with other groups.

Students will be shown a picture of Sabiha Gökçen and they will be asked to make predictions about Sabiha Gökçen and the content of next listening passage.
They will listen to the facts about Sabiha Gökçen and complete the missing parts in the written texts related to the listening passage.
Required to read the text silently, students were asked to focus on the sentence structure and figure out how to write biographical and narrative sentences in the past tense. After making a brainstorming map on the map on past tense sentence structure, they will answer some comprehension questions about Atatürk and S. Gökçen.
They will express their opinions about Sabiha Gökçen and they will write fact and opinion sentences about Sabiha Gökçen.
Students will be asked to write a news story about Sabiha Gökçen in groups of three and the other groups will read and evaluate their friends' work.

**Assessment:** Students will fill in self-assessment and group-assessment forms and put their news stories on their portfolio.

| UNIT 4 –WILD ANIMALS    (Week 12 – Lesson 2) | |
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| **Class:** 7th grades – Treatment Group (31 Students) | **Duration:** 40+40 – 80' |
| **Lesson Objectives:** | |
| **MAIN SKILLS** | **CRITICAL THINKING SKILLS** |
| **Listening:** E7.4.L1. Students will be able to understand past and present events in oral texts.<br>**Spoken Interaction:** E7.4.SI1. Students will be able to ask people questions about characteristics of wild animals.<br>**Spoken Production:** E7.4.SP2. Students will be able to report on past and present events.<br>**Reading:** E7.4.R1. Students will be able to understand past and present events in simple texts. E7.4.R2. Students will be able to spot the names of wild animals in simple texts.<br>**Writing:** E7.4.W1. Students will be able to write pieces describing wildlife. | **Interpretation:** Ss.'ll be able (a) to recognize a problem and define its character without prejudice to inquiry (b) to classify data, findings or opinions using a given classification schema.<br>**Analysis:** Ss.'ll be able (a) to identify a phrase intended to trigger a sympathetic emotional response which might induce an audience to agree with an opinion (b) to examine closely related proposals regarding a given problem and to determine their points of similarity and divergence.<br>**Evaluation:** Ss.'ll be able (a) to anticipate or to raise questions or objections, and to assess whether these point to significant weakness in the argument being evaluated, (b) to determine the extent to which possible additional information might strengthen or weaken an argument.<br>**Inference:** Ss.'ll be able to formulate multiple alternatives for resolving a problem<br>**Explanation**: Ss.'ll be able to produce accurate statements, descriptions or representations of the results of one's reasoning activities so as to analyze, evaluate, infer from, or monitor those results.<br>**Self-regulation:** Ss.'ll be able to reflect on one's motivations, values, attitudes and interests with a view toward determining that one has endeavored to be unbiased, fair-minded, thorough, objective, respectful of the truth, reasonable, and rational in coming to one's analyses, interpretations, evaluations, inferences, or expressions. |

| **CRITICAL THINKING STRATEGIES: S1, S2, S4, S5, S9, S12, S13, S18, S19, S22, S23, S25, S26, S29, S30, S31, S33** |
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| **Procedure:**<br>Students will be shown the pictures of two endangered wild animals (pandas and penguins) and they will be asked to make a similarities and differences table by themselves and they will discuss, make additions and omissions from their tables with their peers.<br>Emphasizing their "endangered" situation, the teacher will ask students to first think alone, then discuss with their peers and finally share in a group on their ideas about the causes of these two animals being in danger.<br>Students will be asked to prepare a leaflet on these animals' causes of being in danger and the ways to protect them from the extinction as if they were a member of a worldwide wildlife protection association. |
| Students will be shown a few pictures of wildlife crimes and they will be asked to describe the context of these pictures and predict the content for the next video.<br>Students will watch a short silent documentary on wildlife crimes. After watching the video, they will be separated into groups of four and they will be asked to discuss on and write down the problems which the wildlife faces and the reasons for these problems. After the discussion, the groups will share their ideas with the whole class and there will be a problem and reason list on the table.<br>Choosing the problem they want, the students will discuss on the solutions, prepare a poster and present their ideas and poster to the whole class. |
| **Assessment: S**tudents will put a copy of their posters and leaflets in their portfolio. They will complete short self- and group evaluation forms. |

| UNIT 5 - TELEVISION  (Week 17 – Lesson 2) | |
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| **Class:** 7th grades – Treatment Group (31 Students) | **Duration:** 40+40 – 80' |
| **Lesson Objectives:** | |
| **MAIN SKILLS** | **CRITICAL THINKING SKILLS** |
| **Listening:** E7.5.L1. Students will be able to understand simple oral texts about daily routines and preferences.<br>**Spoken Interaction:** E7.5.SI1. Students will be able to ask questions about preferences of other people.<br>**Spoken Production:** E7.5.SP1. Students will be able to state their preferences.<br>**Reading:** E7.5.R1. Students will be able to understand simple texts about daily routines and preferences. E7.5.R2. Students will be able to understand simple texts about past events.<br>**Writing:** E7.5.W1. Students will be able to write pieces about daily routines and preferences. | **Interpretation:** Ss.'ll be able (a) to classify data, findings or opinions using a given classification schema, (b) to find an example which helps explain something to someone.<br>**Analysis:** Ss.'ll be able (a) given a complicated assignment, to determine how it might be broken up into smaller, more manageable tasks, (b) to identify and differentiate the premises and reasons advanced in support of the main conclusion.<br>**Evaluation:** (a) to anticipate or to raise questions or objections, and to assess whether these point to significant weakness in the argument being evaluated, (b) to determine the extent to which possible additional information might strengthen or weaken an argument.<br>**Inference:** Ss.'ll be able (a) to recognize premises which require support and to formulate a strategy for seeking and gathering information which might supply that support (b) to apply appropriate modes of inference in determining what position, opinion or point of view one should take on a given matter or issue.<br>**Explanation**: Ss.'ll be able (a) to produce accurate statements, descriptions or representations of the results of one's reasoning activities so as to analyze, evaluate, infer from, or monitor those results, (b) to present the evidential, conceptual, methodological, criteriological and contextual considerations which one used in forming one's interpretations, analyses, evaluation or inferences, so that one might accurately record, evaluate, describe or justify those processes to one's self or to others, or to remedy perceived deficiencies in the general way one executes those processes (c) to give reasons for accepting some claim.<br>**Self-regulation:** Ss.'ll be able to make an objective and thoughtful meta-cognitive self-assessment of one's opinions and reasons for holding them |
| **CRITICAL THINKING STRATEGIES: S1, S2, S3, S5, S9, S10, S12, S13, S15, S17, S18, S24, S25, S26, S30, S32, , S33, S34, S35** | |
| **Procedure:**<br>Students will be shown authentic TV guides for three American channels (news, show, series based) and they will be asked to examine them.<br>Students will be separated in groups of three and they will be asked to make guesses and descriptions on the characteristics, ages, jobs, daily routines and TV watching habits of the audiences of these three different channels. They will discuss their ideas with the whole class.<br>Each student will interrogate the other two students in their group on their daily routines and preferences about the TV programmes.<br>Based on their interrogations, students will prepare a TV guide including various programmes which are suitable for both of the interrogated students. | |
| Students will be presented the question: "What if TV was never invented?" They will be shown two scenes from a room with TV and a room without TV. They will be asked to discuss on the question in peers.<br>Students will be asked to separate as two groups according to their assumptions in the pre-discussion.<br>One group will discuss on the benefits of the TV while the other group will defend the idea that TV is harmful. The groups will first make a inside-group discussion and prepare their arguments on their topic; then they will debate with the other group by explaining their statements and confuting the counter arguments. | |
| **Assessment:** Students will complete self-, peer-, group- evaluation forms and they will put their TV guides in their portfolio. | |