T.R.

KAFKAS UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

DEPARTMENT OF WESTERN LANGUAGES AND LITERATURES

DIVISION OF ENGLISH LANGUAGE AND LITERATURE

THE RELATIONSHIP BETWEEN BELIEFS ABOUT LANGUAGE LEARNING AND FOREIGN LANGUAGE CLASSROOM ANXIETY: ENGLISH-MEDIUM INSTRUCTION IN A TURKISH UNIVERSITIES STEM CONTEXT

MASTER'S THESIS

by

Zafer SARI

ADVISOR

Assist. Prof. Dr. Turgay HAN

KARS- 2017

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T.C.
KAFKAS ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
BATI DİLLERİ VE EDEBİYATI ANABİLİM DALI
İNGİLİZ DİLİ VE EDEBİYATI BİLİM DALI

DİL ÖĞRENİMİ HAKKINDAKİ İNANÇLAR İLE YABANCI DİL SINIF KAYGISI ARASINDAKİ İLİŞKİ: TÜRKİYE'DEKİ ÜNİVERSİTELERDE EĞİTİM DİLİ İNGİLİZCE OLAN FeTeMM BÖLÜMLERİ

YÜKSEK LİSANS TEZİ

Hazırlayan
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Danışman ve Jüri Üyeleri
Yrd. Doç. Dr. Turgay HAN
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KAFKAS ÜNİVERSİTESİ

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ`NE

Zafer SARI tarafından hazırlanan **"Dil Öğrenimi Hakkındaki İnançlar ile Yabancı Dil Sınıf Kaygısı arasındaki İlişki: Türkiye'deki Üniversitelerde Eğitim Dili İngilizce olan FeTeMM Bölümleri"** başlıklı bu çalışma, 07.06.2017 tarihinde yapılan tez savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından İngiliz Dili ve Edebiyatı Anabilim Dalı`nda Yüksek Lisans tezi olarak oy birliğiyle kabul edilmiştir.

Başkan: Yrd. Doç. Dr. Turgay HAN İmza:.....

Üye : Doç. Dr. Gencer ELKILIÇ İmza:.....

Üye : Yrd. Doç. Dr. Doğan SALTAŞ İmza:.....

ONAY

Bu tezin kabulü Sosyal Bilimler Enstitüsü Yönetim Kurulunun ...../...../2017 tarih ve ...../..... sayılı kararı ile onaylanmıştır.

Uygundur

Yrd. Doç. Dr. Yaşar KOP

Enstitü Müdürü V.

KAFKAS UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

This study titled **"The Relationship between Beliefs about Language Learning and Foreign Language Classroom Anxiety: English-Medium Instruction in a Turkish Universities STEM Context"**, which was prepared by Zafer SARI, was accepted unanimously as a Master`s Thesis on 07.06.2017 in the Department of English Language and Literature.

Chair : Assist. Prof. Dr. Turgay HAN Signature:.....

Member of Committee: Assoc. Prof. Dr. Gencer ELKILIÇ Signature:.....

Member of Committee: Assist. Prof. Dr. Doğan SALTAŞ Signature:.....

APPROVAL

The acceptance of this thesis study was registered by the committee of Graduate School of Social Sciences of Kafkas University in session ……on……/……./2017.

Assist. Prof. Dr. Yaşar KOP

Director of Graduate School of Social Sciences

SCIENTIFIC ETHICS STATEMENT

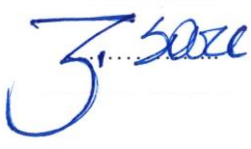
I declare that I complied with the rules of academic and scientific ethics from the proposal stage to the process of completion of the study titled **"The Relationship between Beliefs about Language Learning and Foreign Language Classroom Anxiety: English-Medium Instruction in a Turkish Universities STEM Context"** which I prepared as a Master's Thesis, that I obtained all information in terms of the Project within the framework of scientific ethics and traditions, that I showed sources for each quotation I made directly or indirectly in this study I prepared as a master`s thesis in accordance with the writing rules and that the works which I used are shown in the bibliography.

BİLİMSEL ETİK BİLDİRİMİ

Yüksek Lisans tezi olarak hazırladığım **"Dil Öğrenimi Hakkındaki İnançlar ile Yabancı Dil Sınıf Kaygısı arasındaki İlişki: Türkiye'deki Üniversitelerde Eğitim Dili İngilizce olan FeTeMM Bölümleri"** adlı çalışmanın öneri aşamasından sonuçlanmasına kadar geçen süreçte bilimsel etiğe ve akademik kurallara özenle uyduğumu, tez içindeki tüm bilgileri bilimsel ahlak ve gelenek çerçevesinde elde ettiğimi, tez yazım kurallarına uygun olarak hazırladığım bu çalışmamda doğrudan veya dolaylı olarak yaptığım her alıntıya kaynak gösterdiğimi ve yararlandığım eserlerin kaynakçada gösterilenlerden oluştuğunu beyan ederim.

07/06/2017

Zafer SARI



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ABSTRACT

The main purpose of this study was to investigate the relationship between Turkish EFL students' beliefs about language learning (BALL) and their foreign language anxiety (FLA) levels in the context of STEM education. In this regard, the study aimed to reveal their FLA levels, the sources of their FLA, what their BALL were and also whether there were any statistically significant differences in the learners' FLA and their BALL, in respect to gender, overseas experience, English-medium of instruction being 30% or 100% and foreign language proficiency level. Four hundred and eighty-two Turkish first-year EFL engineering students from at least 30% English-medium departments at four state universities in Turkey participated in the study. Employing a mixed method research approach, the current study was carried out using an exploratory research method. The data was collected through the Turkish versions of the Foreign Language Classroom Anxiety Scale (FLCAS) and the Beliefs about Language Learning Inventory (BALLI) and also through open-ended questions for both scales. The quantitative analysis results indicated a positive weak relationship between the students' FLA levels and their BALL. Also, although the participants were revealed to have moderate levels of FLA, they were revealed to suffer most from communication apprehension, followed by a general feeling of anxiety and a fear of negative evaluation, respectively. Whereas the variables 'gender' and 'medium of instruction' were not found to make a difference to the

students' level of FLA, the variables ‘overseas experience’ and ‘foreign language proficiency level’ were found to make a difference to the students' level of FLA. Besides, the participants were found to have moderate BALL. A significant correlation was found between the variable 'gender' and the students' perceptions of NLL and ME, between the variable 'overseas experience' and the students' perceptions of foreign language aptitude, and between the variable 'foreign language proficiency level' and the students' beliefs about NLL. However, no significant relationship was revealed between the variable 'medium of instruction' and BALL.

Key Words: Beliefs about Language Learning, Foreign Language Anxiety, Factors Affecting Language Learning, Relationship between Beliefs and Language Anxiety, Engineering Students, STEM Education

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ÖZET

Bu çalışmanın amacı, yabancı dil olarak İngilizce öğrenen Türk öğrencilerin Fen, Teknoloji, Mühendislik ve Matematik (FeTeMM) eğitimi kapsamında yabancı dil öğrenme inançları ve yabancı dil kaygı seviyeleri arasındaki ilişkiyi araştırmaktır. Bu bağlamda çalışma, öğrencilerin yabancı dil kaygı seviyelerini, yabancı dil kaygılarının sebeplerini, yabancı dil öğrenme inançlarını ve aynı zamanda öğrencilerin kaygı ve inançlarında cinsiyet, yurtdışı tecrübesi, eğitim dilinin 30% veya 100% İngilizce olması ve yabancı dil seviyesi gibi değişkenler bakımından istatistiksel olarak anlamlı bir fark olup olmadığını araştırmayı amaçlamıştır. Çalışmaya Türkiye'de bulunan 4 devlet üniversitesinin eğitim dili en az 30% İngilizce olan bölümlerinden yabancı dil olarak İngilizce öğrenen dört yüz seksen iki Türk birinci sınıf mühendislik öğrencisi katılmıştır. Bu çalışma karma araştırma metodu kullanarak keşfedici araştırma yöntemiyle gerçekleştirilmiştir. Çalışmanın verileri Yabancı Dil Sınıf Kaygı Ölçeği ve Dil Öğrenme İnançları Envanterinin Türkçe versiyonları ve her iki ölçek için açık uçlu sorularla elde edilmiştir. Nicel analiz sonuçları, öğrencilerin yabancı dil kaygı seviyeleri ile dil öğrenme hakkındaki inançları arasında olumlu zayıf bir ilişkinin olduğunu göstermiştir. Ayrıca, katılımcıların makul düzeyde yabancı dil kaygısına sahip oldukları belirtilmiş ve en çok da konuşma kaygısı yaşadıkları gösterilmiştir. Konuşma kaygısını da sırasıyla genel kaygı hissi ve olumsuz değerlendirme korkusu takip etmektedir. Dahası, 'cinsiyet' ve 'eğitim dili' değişkenlerinin öğrencilerin yabancı dil kaygı seviyeleri

arasında bir fark oluşturmadığı bulunmasına rağmen 'yurtdışı tecrübesi' ve 'yabancı dil yeterlilik seviyesi' değişkenleri öğrencilerin yabancı dil kaygı seviyeleri arasında bir fark oluşturduğu bulunmuştur. Bunun yanı sıra, katılımcıların dil öğrenimi hakkında ılımlı inançları olduğu bulunmuştur. 'Cinsiyet' değişkeni ile öğrencilerin dil öğreniminin doğası ve motivasyon ve beklentiler hakkındaki algıları arasında, 'yurtdışı tecrübesi' değişkeni ile öğrencilerin yabancı dil yeteneği hakkındaki algıları arasında, ve 'yabancı dil yeterlilik seviyesi' değişkeni ile öğrencilerin dil öğrenmenin doğası hakkındaki inançları arasında anlamlı bir ilişki bulunmuştur. Fakat, 'eğitim dili' değişkeni ile dil öğrenme inançları arasında hiçbir anlamlı ilişkinin olmadığı gösterilmiştir.

Anahtar Kelimeler: Dil Öğrenme İnançları, Yabancı Dil Kaygısı, Dil Öğrenimini Etkileyen Faktörler, İnanç ve Dil Kaygısı Arasındaki İlişki, Mühendislik Öğrencileri, FeTeMM Eğitimi

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ABBREVIATIONS

EFL: English as a Foreign Language

ESL: English as a Second Language

L1: Mother Tongue

L2: Second Language

FL: Foreign Language

LA: Language Anxiety

FLA: Foreign Language Anxiety

FLCA: Foreign Language Classroom Anxiety

FLCAS: Foreign Language Classroom Anxiety Scale

CA: Communication Apprehension

FNE: Fear of Negative Evaluation

GFA: General Feeling of Anxiety

BALL: Beliefs about Language Learning

BALLI: Beliefs about Language Learning Inventory

DLL: The Difficulty of Language Learning

NLL: The Nature of Language Learning

LCS: Learning and Communication Strategies

ME: Motivations and Expectations

STEM: Science, Technology, Engineering and Mathematics

FeTeMM: Fen, Teknoloji, Mühendislik ve Matematik

EMI: English as a Medium of Instruction

MoNE : Ministry of National Education

ELT: English Language Teaching

FLSA: Foreign Language Speaking Anxiety

FLSAS: Foreign Language Speaking Anxiety Scale

FLLA: Foreign Language Listening Anxiety

FLLAS: Foreign Language Listening Anxiety Scale

FLRA: Foreign Language Reading Anxiety

FLRAS: Foreign Language Reading Anxiety Scale

SILL: Strategy Inventory for Language Learning

CF: Corrective Feedback

TAI: The Trait Anxiety Inventory

AMQ: The Achievement Motivation Questionnaire

MTELP: Michigan Test of English Language Proficiency

GBM: Generalized Belief Measure

GAM: Generalized Attitude Measure

IBT: Irrational Beliefs Test

STAI: State Trait Anxiety Inventory

GPA: Grade Point Average

SPSS: Statistical Package for the Social Sciences

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CHAPTER ONE

1. INTRODUCTION

In this chapter, first the background of the study is presented. Next, the significance, purpose, research questions and context of the study are presented, respectively. Finally, the key terms regarding this topic are defined.

1.1. Background of the Study

'Language learning' is defined as an especially intense and self-involving venture and it requires the learner to have a favorable affective position. At the core of foreign language learning is the process of expressing personally significant and conversationally suitable messages via alien "syntactic, semantic, and phonological systems" (Horwitz, 1995, p. 574). Ariani and Ghafournia (2016) emphasize that there are a vast number of drivers thought to affect the progress of language learning. While these factors are listed by Ekmekçi (1983) as the mental and linguistic skills, age, gender, mother tongue, judgments and personal experiences of the student, Özer and Korkmaz (2016) list them as language teachers, language learners, teaching methods, environmental factors and the system of education.

The recent literature has focused on anxiety, belief, motivation, attitude and aptitude issues, and also on learner-centered viewpoints in language instruction (Kazazoğlu, 2013). It is also assumed that one of the major factors which affect the language learning process, favorably or adversely, is anxiety (Aida, 1994). Anxiety is defined as "the subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system" by Spielberger (1983, p.1, as cited in Aybirdi, 2016, p.1).

1.1.1. Foreign Language Anxiety (FLA)

The available research has indicated that FLA is significantly different from other types of anxiety and that it has a profound effect upon language learning (e.g. Doğan, 2008; Horwitz, Horwitz, & Cope, 1986; Horwitz, 1986; Horwitz, 2001; Aida, 1994; Tuncer & Doğan, 2015a). FLA is "a distinct complex of self-perceptions, beliefs,

feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (Horwitz et al., 1986, p.128).

Some studies in the literature have shown that there are many causes of FLA such as cultural diversity (Horwitz, 2001); the learners' purpose in learning a foreign language, overseas experience and fear of negative evaluation (Aida, 1994); trying to speak English with perfect pronunciation (Paramuktiyono & Wardhono, 2016); low self-esteem and the way in which the teacher corrects students' errors (Young, 1991); a competitive environment (Young, 1991; Ellis, 1994); anxiety in communication, English class anxiety, fear of negative evaluation and exam anxiety (Al-Khasawneh 2016); teacher characteristics, pedagogical practices, fear of making errors, test taking, and previous experience of learning an additional language (Lababidi, 2016); low competence, fear of negative evaluation, competition with others, a nervous disposition, and pressure derived from the students themselves and their parents (Chan & Wu, 2004).

According to 'The Affective Filter Hypothesis' (Krashen, 1985), individuals have a psychological barrier, 'the Affective Filter', that influences the extent to which they make use of the comprehensible input that is essential but not, in itself, adequate to acquire a language. Above all, emotional traits, such as motivation, desire, anxiety, or self-assurance, control this barrier. More specifically, if the person is not motivated or self-confident, or if he/she is apprehensive or does not have an insatiable desire for knowledge, the comprehensible input gets blocked and the individual's language acquisition does not arise (Krashen, 1985).

FLA has been found to affect learning a language to a great extent. Learners and educators usually see anxiety as a hindrance to be coped with during foreign language learning (Horwitz, 1986). Examining learners' FLA gives teachers a lead into understanding learners' attitudes towards the language learning process, their hopes of being successful or unsuccessful, and their explanations for why they leave or maintain learning (Horwitz, 2001).

A large number of researchers have stated that there is a negative correlation between anxiety and school success (Horwitz et al., 1986; Yan & Horwitz, 2008; Horwitz, 1986; Aida, 1994; MacIntyre & Gardner, 1989; Aydin, 2008). In addition, numerous

empirical studies have indicated that FLA has an significant adverse effect on students' school success (Chan & Wu, 2004; Doğan & Tuncer, 2016; Tuncer & Doğan, 2015a; Tanielian, 2014; Matsuda & Gobel, 2004). However, other studies on FLA have produced contradictory findings (MacIntyre & Gardner, 1989). For instance, some studies have stated that sufficient anxiety has a positive impact on the foreign language learning process (Scovel, 1978; Bardakçı & Kılıç, 2016).

According to Aida (1994), language teachers should diagnose the factors impinging on sustainability and accomplishment in the period of learning a foreign language, for the purpose of enhancing the quality of learning. No matter what its cause is, anxiety is generally an undesirable thing and anxiety-provoking occasions ought to be avoided in an attempt to contribute to the students' learning achievement (Tuncer & Doğan, 2015a). According to Horwitz (2001), language lecturers should be aware of the causes of students' anxiety, in order to ease the damaging impact of anxiety and enhance the quality of the language learning progress.

Similarly, a great deal of research has shown that teachers ought to create an efficient learning environment in which anxiety is minimized and students feel rather comfortable and motivated (Young, 1991; Gregerson, 2003; Al-Khasawneh, 2016; Aydin, 2008; Capan & Pektas, 2013). Other researchers have found different solutions for dealing with FLA, such as speaking activities that are carried out in close connection with peers in small-groups, and foreign language schedules prepared with regard to students' emotional needs (Horwitz, 1995); using recent sources and motivating exercises (Suarez, Taborda, & Santacruz, 2016); making use of failure (Nishitani & Matsuda, 2011), with "fair tests that accurately reflect in-class instruction" (p. 433); and giving priority to being able to convey the message to the listener significantly, rather than only to speaking in grammatically correct sentences with perfect pronunciation (Young, 1991).

1.1.2. Beliefs about Language Learning (BALL)

Students' beliefs determine their attitudes towards learning and their preferences for particular learning strategies (Ellis, 1994). Similarly, it is really necessary to know students' notions of language learning, so as to be aware of their learning strategies and organize suitable lesson programs (Horwitz, 1999). Thus, learners' notions of

foreign language education should be recognized as being of value for effective learning, and the first thing to be done is to discover the students' beliefs since these create "a situation that affects dramatically their process of English learning" (Suarez et al., 2016, p. 148). "Beliefs are central constructs in every discipline which deals with human behavior and learning" (Altan, 2012, p. 481).

Ellis (1994) emphasizes that language students come to lessons with dissimilar notions about language education, and that these various notions lead students to become accomplished in different aspects of language. For example, if a learner believes that grammar and lexical items occupy a more important position in language learning, he/she will be more successful in these fields and maybe less so in speaking or listening lessons (Ellis, 1994). Misunderstanding is caused about the nature and difficulty of the language learning process owing to the individual's erroneous beliefs, which makes learners annoyed, impatient and unsuccessful within this period (Horwitz, 1995).

If instructors know their students' BALL, this helps them to understand what their learners' attitudes are towards English activities and tasks, which also makes it possible and easier for instructors to promote more efficacious learning techniques for learners. So BALL has a bearing on success and learning strategies (Horwitz, 1988).

In the available literature, there are some studies investigating the impact of students' BALL on their learning strategies (Zarei & Rahmani, 2015; Azar & Saeidi, 2013; Suwanarak, 2012). For example, Zarei and Rahmani (2015) found that "foreign language aptitude", "nature of foreign language learning", "learning and communication strategies", and "motivation and expectation" were dramatically predicted by "meta-cognitive strategies". Besides, a significant correlation was found between learners' thoughts and methods, suggesting that the more high-powered their approach, the more methods students tend to apply (Azar & Saeidi, 2013). Similarly, Suwanarak (2012) found a significant correlation between learners' beliefs about learning English and their choice of learning strategies and also showed that the majority of the participants did not consider themselves to be accomplished in

learning English, in spite of the fact that a few of the subjects used learning strategies.

Moreover, some other studies have focused on the factors affecting learners' BALL (Fujiwara, 2011; Apairach & Vibulphol, 2015; Wang & Rajprasit, 2015; Genç, Kuluşaklı & Aydın, 2016; Hismanoglu, 2016; Kojour & Heirati, 2015). For instance, learners' language knowledge and ability to learn a foreign language, the learning environment and context have been found to be certain predictors of attitudes to development (Fujiwara, 2011). With respect to self-guided learning, involving factors such as being aware of the significance of using different sources, being able to exploit materials via the internet, believing that better communication skills would help learners to get a good job, wanting to be able to communicate in English, it has been reported that learners exposed to more English in a language instructional program possess a more facilitating, determined, promising and willing viewpoint (Apairach & Vibulphol, 2015). Furthermore, subjects' self-competence has been found to have an effect on their opinions (Genç et al., 2016). Also gender, second foreign language knowledge and overseas experience have been shown to influence BALL (Hismanoglu, 2016). Lastly, thanks to training in strategy, the participants in a study all changed their unrealistic attitudes (Kojour & Heirati, 2015).

Unless instructors recognize what their students' specific beliefs are, it is, indeed, impossible for an efficient language teaching-learning process to succeed (Chatouphonexay & Intaraprasert, 2014).

1.1.3. Science, Technology, Engineering and Mathematics (STEM) Education and the Importance of Foreign Language Learning in the Context of STEM Education

STEM is an acronym, formed from the first letters of the interdisciplinary educational fields of science, technology, engineering and mathematics, which is often used in the competitive contemporary world. These four disciplines are thought to be essential for achievement nowadays and, thus, they are not separated from each other, but integrated. STEM education involves all the four skills necessary for modern world practices (Reeve, 2014).

Furthermore, it is no longer sufficient for students in these fields to have only the technical knowledge required in their area of expertise. At the same time, in the professional world and the labor market, they will be required to possess some extra personal and professional abilities. The most valuable skill among these is to know a modern language well, "especially English- the lingua franca of science and technology today", and to be able to speak it fluently (Gimeno, Seiz, Siqueira, & Martinez, 2010).

Nowadays, in what is accepted as the information age, knowing a foreign language is regarded as a necessity, not only for scientists, but also for people working in different fields. For instance, it is of great importance to know a foreign language in engineering. Engineers have expressed the importance of foreign language knowledge as follows: a) the need for a common language in the sector b) their desire to be a good engineer c) the ability to find a job more easily after graduation (İlter, 2009).

Besides, since authors produce their work (articles, books, papers, etc.) in different languages, students receiving STEM education need English, which serves as a common foreign language, enabling them to access resources related to their fields which have been published in languages which are not native to them (Kayıkcı, 2009).

Recently, the contents of language lessons have been composed of issues related to a certain occupation or an academic area. The reason for this is that "this type of content-based instruction enables the integration of language and content learning, and contributes to the naturalness of content for language instruction" (Larsen & Freeman, 2000, as cited in Han, 2015, p. 82).

1.1.4. English-Medium Instruction (EMI) in STEM Education in the Turkish University Context

When the curriculums of the Turkish Ministry of National Education (MoNE) are examined, English language teaching/training starts in the second grade of primary education and continues until the last years of secondary education (MoNE, 2016a). So important is English considered to be that preparatory classes are opened before

the ninth grade in foreign language intensive high schools (MoNE, 2006). Another indication of the importance given to English in the country is the support courses that are held for between at least sixteen and at most thirty-two lesson hours per semester, in addition to the curriculum (MoNE, 2016b).

Within the framework of the regulations published in the official journal no. 29662, dated Wednesday, March 23, 2016, in respect of higher education institutions, in some programs courses are taught completely in English and in some at the level of 30%. At Dokuz Eylül University in Izmir, for example, the medium of instruction in the Departments of Computer Science and also of Electrical and Electronic Engineering is 100% English. On the contrary, the medium of instruction in the Departments of Mechanical, Textile, and Metallurgical and Materials Engineering is 30% English.

1.2. Significance of the Study

A multitude of emotional factors, consisting of beliefs, manners, self-respect and motivation influence students' foreign or second language learning progress in several ways (Aida, 1994). One of these most efficient determinants is, specifically, anxiety, which is first and foremost instrumental in determining language learners' achievements (Serraj & Noordin, 2013) because nervous students err more (Gregerson, 2003). Not only does anxiety highly influence student success but also most facets of foreign language learning (Horwitz et al., 1986). Secondly, extreme anxiety triggers the fear of making mistakes in language learning and the student may avoid expressing himself or herself for fear of making mistakes (Bardakçı & Kılıç, 2016). Last but not least, FLA inhibits not only acquisition but also the retention and production processes of language learning (MacIntyre & Gardner, 1991a).

In the fields of education and psychology, investigators and linguists have conducted a great deal of research into anxiety (e.g. Horwitz et al., 1986; MacIntyre & Gardner, 1988; Krashen, 1985; Scovel, 1978; Young, 1991). This is because of the fact that anxiety has an unfavorable impact upon the learning of a language since a lot of learning types are prevented by anxiety (Horwitz, 2001). Similarly, many studies have revealed that anxiety influences learner performance in language courses in an

adverse way (Horwitz et al., 1986; Yan & Horwitz, 2008; Aida, 1994; Horwitz, 2001; Horwitz, 1986; Serraj & Noordin, 2013; MacIntyre & Gardner, 1989; Aydin, 2008; Krashen, 1985). First, students of foreign languages are inhibited from being able to succeed in language courses by an anxiety response (Horwitz et al., 1986). Second, students' motivation, individual problems, targets, hopes and learning techniques influence anxiety, and all of them also affect the language learning process in an adverse way (Yan & Horwitz, 2008).

Alongside the issue of anxiety, Horwitz (1999) states that, lately, educators have become conscious of the fact that students play an active role in the language learning process and deal with it in their own distinctive manner. Researchers and scholars have shown an interest in what learners think about learning a language (Horwitz, 1999). Ariani and Ghafournia (2016) stated in their study that what learners believe, feel, and think about language training is instrumental in determining the effects of their language training. Pedagogical inquiries into BALL take up considerable space in the literature because it is one of the foremost vital factors affecting the learning process (Alsamaani, 2012). Like Alsamaani (2012), numerous studies lay great emphasis on learner beliefs about learning a foreign language (Horwitz, 1995; Horwitz, 1999; Chatouphonexay & Intaraprasert, 2014; Suarez et al., 2016; Kojour & Heirati, 2015; Ellis, 1994; Tercanlıoglu, 2005; Ariani & Ghafournia, 2016; Horwitz, 1985; Horwitz, 1988).

Several studies have investigated FLA in different contexts (e.g. Park & French, 2013; Elaldı, 2016; Chan & Wu, 2004; Serraj & Noordin, 2013; Bekleyen, 2009; Sheen, 2008; Mak, 2011; Tsiplakides & Keramida, 2009; Liu & Jackson, 2008). Similarly, BALL has been the main focus of research in a variety of contexts (e.g. Ariogul, Unal & Onursal, 2009; Cephe & Yalçın, 2015; Alsamaani, 2012; Saeb & Zamani, 2013; Zarei and Rahmani, 2015; Azar and Saeidi, 2013; Fujiwara, 2011). Furthermore, a number of studies have examined the correlation between FLA and BALL in different contexts (e.g. Tran, Baldauf, & Moni, 2013; Wang, 2005; Pramuktiyono & Wardhono, 2016; Zhang & Rahimi, 2014; Er, 2011; Tittle, 1997; Woodrow, 2011; Cubukcu, 2008). The results of these studies have indicated that a) there is a significant relationship between students' BALL and FLA. That is, the more negative the beliefs are, the higher the FLA is (Wang, 2005; Pramuktiyono &

Wardhono, 2016; Er, 2011; Cubukcu, 2008); and b) the educational levels and interest in language learning of the students' parents and acquaintances have an impact on students' BALL and FLA (Er, 2011; Pan & Akay, 2015).

To the best of the researcher's knowledge, there is no study investigating the connection between FLA and BALL in the context of Turkish STEM education. To remedy this gap in the literature, the researcher conducted a study on Turkish EFL STEM students' FLA levels, their beliefs about learning English and the interrelationship of these two concepts in the context of STEM education.

The study fills the gap in the literature and may be useful for those involved in the foreign language learning and teaching process and also for future research. It will help STEM students to notice the sources of their FLA and look for a way to cope with anxiety. At the same time, it may enable them to realize the extent to which their beliefs have an effect upon their level of anxiety and, thus, to develop more reasonable beliefs. Along the same lines, it shows language teachers that if they promote a student-centered learning atmosphere by taking account of their students' beliefs about language learning and minimizing their anxieties, they will pave the way for more effective learning and foster a teaching environment which increases learner success.

1.3. Purpose of the Current Study

First, this study aims to examine the relationship between Turkish EFL STEM students' BALL and their FLA levels in the context of STEM education. In particular, the study aims to investigate what Turkish EFL STEM students' beliefs and opinions are about language learning and also their anxiety levels in the context of STEM education. Another significant purpose of the study is to determine whether and to what extent Turkish STEM students' BALL and Foreign Language Classroom Anxiety (FLCA) show an alteration in respect to gender, overseas experience, the degree of EMI and foreign language proficiency level.

1.4. Research Questions

This study has sought answers for the under-mentioned research questions guiding the current research.

1.4.1. Major Research Question

1. Is there a correlation between Turkish EFL STEM students' BALL and their FLA levels?

1.4.2. Minor Research Questions

1. What are the BALL that Turkish EFL STEM students hold?
2. What are the significant factors affecting Turkish EFL STEM students' BALL?
3. To what extent do Turkish EFL STEM students suffer from FLA?
4. What are Turkish EFL STEM students' perceptions of the major sources of their FLA?
5. Are there any significant differences between male and female Turkish EFL STEM students with respect to BALL and FLA?
6. Are there any significant differences between Turkish EFL STEM students studying in 30% or 100% English-medium departments with respect to BALL and FLA?
7. Do Turkish EFL STEM students' BALL and FLA vary in relation to overseas experience?
8. Do Turkish EFL STEM students' BALL and FLA vary in relation to their English proficiency levels?

1.5. Context of the Study

This research study centered upon first-year EFL STEM students who study at four state universities in Turkey and whose departmental medium of instruction is at least 30% English. This study was completed within the period of six months from the end of December 2016 to the end of June 2017. It carefully examined STEM students' BALL and FLA levels in English language learning in the context of STEM education, by concentrating upon the relationship between learners' beliefs and levels of anxiety. The reason for studying STEM students is the presumption that their BALL and levels of FLA may be different from other learners, such as those majoring in English or at high school, etc. The present research will assist STEM students to become more aware of themselves, in terms of their beliefs and anxiety levels about language learning. The necessary data were collected via both

quantitative (FLCAS and BALLI questionnaires) and qualitative (open-ended questions for both surveys) methods.

1.6. Definitions of the Key Terms

Key terms, used extensively in the present research, are defined, as follows:

Anxiety: Anxiety is defined as "the subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system" by Spielberger (1983, p.1, as cited in Aybirdi, 2016, p.1).

Foreign Language Anxiety (FLA): Horwitz et al. (1986) describe FLA as "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (p.128).

Foreign Language Classroom Anxiety Scale (FLCAS): Horwitz et al. (1986) developed the FLCAS with the intention of investigating a person's reaction to language learning stimuli and supplying researchers with a standardized tool in parallel with this purpose.

Situational Anxiety: According to Ellis (1994), situational anxiety is "the anxiety which is aroused by a specific type of situation or event such as public speaking, examinations, or class participation" (p. 480). Horwitz et al. (1986) formed the concept of situation-specific anxiety in the context of FLA, which means that individuals suffer from anxiety on particular occasions, not in most instances.

Trait Anxiety: According to Scovel (1978), trait anxiety is "a more permanent disposition to be anxious" (p. 137).

State Anxiety: Cattell and Scherer (1958, 1961) conceptualize state anxiety as a temporary emotional situation characterized by the emotions of personal frustration and horror (as cited in Buyukozturk, 1997, p. 453).

Beliefs: "Beliefs are central constructs in every discipline which deals with human behavior and learning" (Altan, 2012, p. 481).

Beliefs about Language Learning Inventory (BALLI): Horwitz (1999) emphasizes that students' opinions about and notions of language learning have an impact on their language knowledge, skill and the language learning process. In this respect, Horwitz (1988) developed the BALLI, in an attempt to determine how students approach language learning, what they think about it, and whether they are pleased with this process (Horwitz, 1999).

Language Learning: Language learning is defined as an especially intense and self-involving venture and it requires the learner to have a favorable affective position (Horwitz, 1995).

Science, Technology, Engineering, and Mathematics (STEM) Education: STEM is an acronym, formed from the first letters of the interdisciplinary educational fields of science, technology, engineering, and mathematics, which is often used in the competitive contemporary world. These four disciplines are thought to be essential for achievement nowadays and, thus, they are not separated from each other, but integrated. STEM education involves all the four skills necessary for modern world practices (Reeve, 2014).

CHAPTER TWO

2. REVIEW OF THE LITERATURE

2.1. Introduction

This chapter first explains and discusses what language learning, foreign language learning, anxiety and FLA are, with emphasis on FLA's effects on the foreign language learning process. Secondly, it presents the types of anxiety, the sources of FLA, the effects of FLA on school success, and how to deal successfully with FLA, respectively. Next, it explains learners' BALL, whether BALL show a change, the association between teachers' and students' BALL, and also the correlation between learners' FLA levels and their BALL, in turn. Finally, it presents the empirical studies on FLA and BALL, as well as on the relation between FLA and BALL, respectively.

2.2. Language Learning and Foreign Language Learning

'Language learning' is an intensely upsetting psychological matter, since a person's ideas and principles connected with himself or herself and also his or her general philosophy of life are under direct threat by it (Guiora, 1983, as cited in Horwitz et al., 1986).

The 'learning of a foreign language' is found by most individuals to be a stressful process, particularly in the classroom environment, (Horwitz et al., 1986). According to Horwitz (1995), while learning a foreign language, as distinct from learning or studying in other disciplines, the learners ought to be involved in the process, due to the fact that foreign language learning is not just learning lexical items by heart or using language structures. In an encouraging and not anxiety-provoking atmosphere, learning occurs much better (Scovel, 1978). Ensuring that learners recognize the values, beliefs, attitudes, traditions, and rituals of the target culture provides the greatest contribution to learning the language in the most accurate way (Tarakçıoğlu, 2016).

2.3. Foreign Language Anxiety (FLA)

Anxiety is defined as a worrisome emotion that appears when a strong desire or impulse seems not to reach its goal (TDK, 2017). Also, anxiety is the physical, sensory and mental stimulation that a person presents when he or she is exposed to a warning (Taş, 2006). With a different discourse, anxiety is a feeling without any cause or reason (Aydın, 2004). The concept of anxiety has an essential role in affecting each stage of human beings' lives (Rezazadeh & Tavakoli, 2009).

Anxiety is directly connected with foreign language learning, thus it has attracted growing attention (MacIntyre & Gardner, 1988). For some considerable time, linguists, language educators and language students have paid attention to the major matter that anxiety may obstruct the progress of learning a language (Horwitz, 2010; Krashen, 1985; Horwitz, 1986; MacIntyre & Gardner, 1991a). The fact that linguists, language educators and researchers have taken a keen interest in learner anxiety is only to be expected, since special emphasis has been attached to learning English in a great number of situations (Horwitz, 2016). Anxiety is thought to be a principal hindrance to be coped with in the process of learning a foreign language (Horwitz et al., 1986).

Anxiety has an effect on learners' language acquisition progress (Krashen, 1998). Indeed, FLA inhibits not only acquisition but also the retention and production processes of language learning (MacIntyre & Gardner, 1991a). Similarly, Krashen (1985) stated that anxiety affects the language learning or acquisition process in a negative way, and Ellis (1994) affirmed that anxiety is of vital importance in the course of language acquisition and learning. Contrary to this, the individual feels anxiety more frequently not while acquiring a language, but while learning it. For this reason, the term ‘anxiety’ is directly linked to learning a foreign language (Scovel, 1978).

MacIntyre (1998) describes FLA as apprehension and the negative emotional response which emerges when a second or foreign language is being learned or used (as cited in Güngör, 2016). According to Young (1991), FLA is a complicated, hyper dimensional matter of fact. It occurs in learners in differing amounts, based on "ethnic background, prior language experience, learner personality and classroom

circumstances" (p. 434). Horwitz (2001) has asserted repeatedly that FLA is a vital factor causing learners to gain unequal accomplishment. Additionally, the researcher has argued that anxiety is the source of the disappointment and uneasiness that great numbers of learners endure during the process of learning a foreign tongue (Horwitz, 2001).

Contributing causes derived from students, such as anxiety, interfere with the learner's affective responses and motivation. Also these factors stimulate the limbic system and have it intervene in the learning process. Anxiety is one of the leading learner variables manifesting in learning duties (Scovel, 1978). FLA is not a feeling shown in the first lesson. Over time, the formation of anxiety in respect of a foreign language is a result of the attitudes and behaviors shown towards the language within the learning process (Er, 2011).

2.4. Types of Anxiety

The notion of anxiety contains a wide range of aspects, and anxieties of different kinds have been conceptualized by psychologists, embracing facilitative-debilitative anxiety, achievement anxiety, state anxiety, and trait anxiety (Horwitz, 2010).

2.4.1. Communication Apprehension, Test Anxiety and Fear of Negative Evaluation as Performance Anxieties

Due to the connection between FLA and evaluating students' achievement, Horwitz et al. (1986) approached performance anxiety under three sub-headings: "communication apprehension, test anxiety and fear of negative evaluation". Firstly, communication apprehension is identified as a state of timidity caused by unease about communicating with others, and students undergo it when they have problems in comprehending other people and in conveying their messages, opinions and attitudes tellingly. Secondly, exam anxiety is characterized as a fear of failure and indicates an unfavorable attitude towards evaluating accomplishment. Finally, fear of negative evaluation is defined as concern about being evaluated in an adverse way by other people (Horwitz et al., 1986).

That the speaker and the listener are obliged to convey notices to each other is termed as 'communication' (Vardar, 2002). Communicating in front of people in the

target language and comprehending it were revealed to contain most of the FLA (Horwitz, 1995). In other words, the most anxiety-creating in-class exercise is verbal communication. When forced to speak by language educators, learners may experience communication anxiety and they hate this situation. Starting from this, 'anxiety over communication' is a kind of speaking or listening worry experienced during communication in a foreign language (Krashen, 1998).

When it comes to FLA, exam anxiety usually comes to mind, yet FLA varies and includes constructs such as speaking anxiety, fear of negative evaluation and exam apprehension (Horwitz, 1986). Aida (1994) has identified two substantial elements of FLA as worry about communication and being afraid of evaluation in an unfavorable way. In short, FLA does not have another element named exam anxiety, nor is exam anxiety accepted as being concerned with communication anxiety or fear of negative evaluation (Aida, 1994).

2.4.2. Facilitative and Debilitative Anxiety

Kleinmann (1977) conducted a study to explore the extent to which 39 Arabic, Portuguese, and Spanish ESL students of an intermediate English proficiency level abstained from using several language structures such as the passive voice, present continuous, etc. At the same time, the researcher paid close attention to the correlation between the students' language performance and debilitative and facilitative anxieties. At the end of the study, facilitative anxiety was revealed to have an affirmative effect on the usage of such structures. In other words, students that had high levels of facilitative anxiety were less likely to avoid using these structures than ones that had high levels of debilitative anxiety. The concept of anxiety was stated to have not only debilitative influences but also a facilitative effect on students' performance and on the process of language learning.

Not only affirmative but also adverse motivation develops the learning performance. Adequate apprehension is required to achieve language learning success. However, too much worry makes a reverse impact. Students are motivated to use the more difficult English grammatical forms and to try to achieve different tasks under the influence of facilitative anxiety which prepares them affectively for the attempt. On

the other hand, learners are motivated to avoid certain tasks due to debilitative anxiety which prompts them affectively for evasion (Scovel, 1978).

Horwitz (2016) promotes the idea that LA does not have a facilitating effect on the language learning process. In other words, the researcher lays emphasis on the view that feeling anxious does not motivate or encourage students to study in language courses, because most students regard learning a language as a troublesome, protracted "high-stakes" process (as cited in Horwitz, 2016, p. 934).

2.4.3. Trait and State Anxiety

Cattell and Scherer (1958, 1961) conceptualize state anxiety as a temporary emotional situation characterized by the emotions of personal frustration and horror (as cited in Buyukozturk, 1997). Öner and LeCompte (1985) assert that state anxiety is the feeling of uneasiness that causes the individual's physical reactions in environments which are stressful for him/her, or the reduction of uneasiness upon the change of this environment (as cited in Çolak, Eren, & Doğan, 2017).

According to the 'Causality Model', describing the 'formation process of FLA', (MacIntyre & Gardner, 1989), whereas learning and achievement are affected by communication anxiety, achievement affects state anxiety. In other words, learners underachieve in English courses due to FLA and this failure induces an increase in state anxiety. State anxiety and FLA are linked to two dissimilar contributing causes. In the event that a learner feels repeated state anxiety in English lessons, this converts into situational anxiety by getting stronger. Repeated low success makes this situation-specific anxiety continue and strengthen, which gives rise to FLA (MacIntyre & Gardner, 1989).

State anxiety has something in common with both situational and trait anxiety (Ellis, 1994). Similarly, the mixture of both trait and situation-specific anxiety creates state anxiety (MacIntyre & Gardner, 1991a).

Öner and Lecompte (1985) state that trait anxiety is the kind of person-specific anxiety that exists in the individual himself/herself, independently of the environment in which the individual is (as cited in Çolak et al., 2017). Scovel (1978) defines trait anxiety as "a more permanent disposition to be anxious" (p. 137).

According to Spielberger (1983), trait anxiety is "an individual's likelihood of becoming anxious in any situation (as cited in MacIntyre & Gardner, 1991a, p. 87).

Anybody suffering from trait anxiety at a high level may feel anxiety in a variety of different circumstances (MacIntyre & Gardner, 1991a). However, trait anxiety has almost nothing to do with the process of language learning (MacIntyre & Gardner, 1991b).

2.4.4. Situational Anxiety

Horwitz et al. (1986) formed the concept of situation-specific anxiety in the matter of FLA, which means that individuals suffer from apprehension on particular occasions, not in most instances. According to Ellis (1994), situational anxiety is "the anxiety which is aroused by a specific type of situation or event such as public speaking, examinations, or class participation" (p. 480). Also, situational anxiety is described as trait anxiety restricted to a certain circumstance (MacIntyre & Gardner, 1991a). Students are frequently uneasy about learning a language, more particularly situational anxiety often arises on the subject of speaking the language concerned (Ellis, 1994).

2.5. The Sources of Foreign Language Anxiety

Young (1991) pointed out the six causes of FLA as follows: "1) personal and interpersonal anxieties; 2) learner beliefs about language learning; 3) instructor beliefs about language teaching; 4) instructor-learner interactions; 5) classroom procedures; and 6) language testing" (p. 427). These causes are related to each other and to a certain degree might occur in consequence of labored class methods.

When the tie between anxiety and exercises in class is taken into account, regard ought to be paid to students' cultural diversity. This is because an exercise may be found to be relaxing by some students, whereas it may be found to be stressful by others with an unlike cultural background (Horwitz, 2001). At the same time, the learners' purpose in learning a foreign language, overseas experience, and pleasure in the exam marks achieved on the language course have been attributed an important role in students' levels of anxiety (Aida, 1994).

Feeling frightened of being evaluated in a negative way, uneasiness about speaking a foreign language on the course, shyness about making mistakes in front of peers, being scared of not being able to keep pace with the class or pass the class completely, feeling worried while communicating with native speakers of the target language, and adverse thoughts about language lessons have all been indicated as sources of anxiety (Aida, 1994). The issue of communicating in English by pronouncing words in an excellent and correct way makes most of the students overly uneasy and tense (Paramuktiyono & Wardhono, 2016).

Two important anxiety-provoking agents are a competitive environment and low self-respect (Young, 1991). Students' competitive manners may account for apprehension (Ellis, 1994).

The reasons why the students were concerned about learning a language were being invited or asked to speak in an English course; having difficulty in understanding English; communicating in English among their friends; being afraid of not passing the English course; and lack of preparation for the lessons (Pramuktiyono & Wardhono, 2016). The principal factor causing anxiety in the learners is not the teachers' correcting their errors in itself, rather it is the way of correcting errors, namely how, when, and how often teachers correct errors. By means of 'the Modeling Approach' (Young, 1991), teachers correct students' errors by saying their incorrect utterances again in a corrected form. Thus, teachers avoid severe, immediate and humiliating correction. Besides, learners feel less worried because they are not upset or offended as they might be by harsh correction (Young, 1991).

Aida (1994) carried out a study in order to unearth the relationship between anxiety and learning the Japanese language. Ninety-six sophomores of various nationalities studying Japanese contributed to it. These participants were divided into two groups as English natives and English non-natives. According to the findings, both groups had indistinguishable anxiety levels. Besides, the variable of gender was revealed to have no appreciable impact on anxiety about language.

2.6. The Effects of Foreign Language Anxiety on School Success

The foremost factors interfering with student progress have been presented as school subjects, the learners' degree of intelligence, the complexity of the skills examined, and students' acquaintanceship levels with learning tasks (Scovel, 1978). In foreign language learning, one of the most efficient determinants is precisely anxiety and it is instrumental in determining language learners' achievement (Serraj & Noordin, 2013). "Both the learning (input) and production (output)" are affected by anxiety (p. 273) and there is an obvious correlation between FLA and competence in the foreign language (MacIntyre & Gardner, 1989).

With the objective of exploring whether anxiety has any impact upon students' progress in learning a language, it is really necessary to differentiate between anxiety's effect on the language learning process and its effect on language performance. Also, it is frequently troublesome to identify whether apprehensive students are absolutely hard put to show their language ability, or whether apprehension inhibits students' learning and has an effect on academic standings. In other respects, so as to comprehend the association between language learning and anxiety, there is only one thing to be done and this is to discover whether and the extent to which anxiety affects the success of foreign language adversely (Horwitz, 2001).

Motivation that highly affects students' achievement in the language learning process; individual matters; and other vital student factors on which motivation directly depends, including the learners' targets, hopes and learning techniques, all influence anxiety and hence the language learning progress in a negative way (Yan & Horwitz, 2008).

A large number of researchers have stated that there is a negative correlation between anxiety and school success (e.g. Horwitz et al., 1986; Yan & Horwitz, 2008; Horwitz, 1986; Aida, 1994; MacIntyre & Gardner, 1989; Aydin, 2008). Horwitz et al. (1986) found that there is a significant negative correlation between FLA and students' school success. In other words, low-anxiety learners are much more accomplished in their school subjects than their high-anxiety peers. Yan and Horwitz (2008) highlighted the fact that anxiety has an adverse influence on students'

performance and second and foreign language success. A significant negative correlation was observed between anxiety and exam marks. That is, the more nervous the learners are, the less successful they are (Horwitz, 1986). A significant negative correlation was observed between achievement and anxiety. In other words, the less worried learners are, the more successful they will be in their courses (Aida, 1994). Students of foreign languages are inhibited from being able to succeed in language courses by an anxiety response (Horwitz et al., 1986). Anxiety decreases success and learning (MacIntyre & Gardner, 1989). Based on educators' monitoring, learners' experience, and the relevant studies in books and articles, anxiety in language learning influences the process of language learning in a negative way (Aydin, 2008).

Worried and unworried learners' styles of distinguishing and responding to the errors they make in the course of communicating in the L2 are different from each other (Gregersen, 2003). Gregersen (2003) found that nervous students erred more, righted their errors and involuntarily returned to their own native language while speaking the target one more often, exaggerated the errors, and showed lower awareness of the errors when they were fed back to them.

Studies that have investigated FLA have produced contradictory outcomes (MacIntyre & Gardner, 1989). The foregoing studies stated that there is a significant negative correlation between anxiety and student performance (e.g. Horwitz et al., 1986; Yan & Horwitz, 2008; Horwitz, 1986; Aida, 1994; MacIntyre & Gardner, 1989; Aydin, 2008). Even "anxiety (its presence or absence) is best seen not as a necessary condition of successful L2 learning, but rather as a factor that contributes in differing degrees in different learners" (Ellis, 1994, p. 483). However, Scovel (1978) has claimed that the effect of apprehension on academic success is undetermined. This is because "anxiety itself is neither a simple nor well-understood psychological construct" (Scovel, 1978, p. 132). Extreme anxiety triggers fear of making mistakes in language learning and the student can avoid expressing himself or herself in the fear of making mistakes. Provided that it is not too high, anxiety helps to improve the student's performance. Students who succeed in language learning are often learners who are able to control their anxiety levels and emotions that will affect the language learning process in general (Bardakçı & Kılıç, 2016).

2.7. How to Deal Successfully with Foreign Language Anxiety

During foreign and second language education, educators should create a student-centered classroom atmosphere in which anxiety is relieved to the minimum level possible (Young, 1991). As one of their duties, instructors should ease worrying situations in the class and establish an amicable and cooperative environment so that learners lose their fear of erring (Gregersen, 2003). In order to relieve redundant and undesirable anxiety in the language learning environment, instructors should establish an atmosphere that is comfortable and relaxed, and which promotes learning the language in an efficient and effective way; and they should stimulate the learners' interest and also strengthen their motivation to learn the target language (Young, 1991).

The foreign language learning environment ought to motivate and encourage students during the language learning process. Also educators have a responsibility to minimize anxiety as the most influential object in this process (Al-Khasawneh, 2016). Less nerve-racking learning environments and contexts as well as impressive communication are ways to deal with language anxiety (Aydin, 2008). Speaking exercises that are conducted in close connection with peers in small-groups strengthen learners' motivation and reduce their apprehension (Horwitz, 1995). Learners think that current resources, speaking tasks, and motivating exercises are valuable for arousing their interest (Suarez et al., 2016).

Nishitani and Matsuda (2011) suggest that students should be aware of the fact that there are many techniques for facilitating the learning process and that one of them is, of course, making use of failure. Thus they will be able to take good advantage of their failure by accepting making mistakes as an inevitable part of this process. In this way, learners will feel less anxiety and have more internal motivation.

The extent to which students feel nervous owing to reformative feedback ought to be taken into account by educators. Besides, instructors ought to be clear about the issue that apprehension makes the learning process possible or easier, instead of impossible or weaker (Ellis, 2009).

At the same time, educators should be conscious of the issue that language learning is affected by both the learners' mood and mental capacities to the same degree. Therefore, they should prepare foreign language programs with regard to students' affective needs, and develop their own specific methods adapted to their pupils' distinctive features in order to increase learners' motivation levels, alleviate their apprehension levels, and help them to address their unfounded notions (Horwitz, 1995).

For the students to cope with exam anxiety, "fair tests that accurately reflect in-class instruction" should be prepared by lecturers and language programs, by adhering to the principle "test what you teach in the context of how you teach it" (Young, 1991, p. 433). If language teachers are competent to help students deal with their adverse and unreasonable voices, the progress of the language training gathers speed and errors of measurement might diminish (Ariani & Ghafournia, 2016).

Young (1991) emphasized that "there is more to language learning than just grammar rules and forms" (p. 432). Students need to pay attention not only to creating correct and accurate grammatical sentences, but also to communicating and transferring their messages to their peers and teacher significantly. By this means, learners may be able to speak the target language comfortably in class without monitoring themselves in respect of making mistakes. To enable this, educators make learners understand that they "are equally interested in what they have to say as in how they say it" (Young, 1991, p. 433).

Students' apprehension about reading in a foreign language might be facilitated in a sincere and sociable learning atmosphere where educators are friendly and approachable (Capan & Pektas, 2013).

In a pilot study, Vitasari, Wahab, Herawan, Othman and Sinnadurai (2011) aimed to cope with apprehension for the purpose of increasing school success. Six engineering undergraduates were treated six times. After these treatments, involving 'study coping skills', 'relaxation', and 'breathing retreatment', every subject's degree of apprehension decreased and hence their academic achievement increased.

2.8. Beliefs about Language Learning

What learners believe, feel, and think about language training is instrumental in affecting their language training (Ariani & Ghafournia, 2016). Teachers "consider students' voices as a reliable source of information". "As long as students' beliefs are disregarded, they become a more powerful and invincible force influencing all actions". To bring this force under control in English classes, instructors should diagnose and comprehend the opinions contributing to it (Suarez et al., 2016, p. 149).

Learners' motivation and expectations were found to be the most notable areas in the matter of learning EFL (Tercanlıoglu, 2005). Learners' learning and pleasure within this process can be developed if learner notions are assessed in an efficient and determined way (Horwitz, 1985).

Beliefs and school success are influenced considerably by students' socio-economic standing. Decreasing beliefs like economic and social position, attention and motivation are factors which are likely to contribute to the demotivation of students learning a foreign language and to reduce their achievement (Ariani & Ghafournia, 2016). Pupils believe that uniformity of resources, class arrangements and the educator's position are factors which motivate them in an adverse way (Suarez et al., 2016).

If lecturers are conscious of their learners' opinions and feelings about foreign language, this consciousness can enable them to help the students develop their own beliefs and get more pleasure from foreign language courses (Kojour & Heirati, 2015). Meanwhile, language learners can be motivated by syllabuses that are prepared by educators taking language learners' BALL into consideration (Hismanoğlu, 2016).

2.9. Do Beliefs about Language Learning Vary?

Students' diversified learning situations, rather than their cultural differences might be the reason why beliefs vary from group to group. The significant causes of in-group differences in students' beliefs might be lifetime, life stage or context. Also, student notions may possibly be affected by variation in context in the language learning atmosphere and particular lesson activities (Horwitz, 1999). However,

Suarez et al. (2016) have revealed that learners' feelings and ideas about language education stay almost the same during high school.

From a different viewpoint, Basaran and Cabaroglu (2014) claim that particular sorts of BALL are positively affected by podcast usage by means of portable tools. Nonetheless, it is not so easy to alter notions and it requires a great deal of effort to do this.

2.10. The Association between Teacher and Student Beliefs about Language Learning

Not only students' but also instructors' voices should be regulated. This is because instructors lead and educate their students according to their own beliefs about the teaching-learning approach (Kojour & Heirati, 2015). It is really essential to recognize both teachers' and students' views about learning a foreign tongue, if suitable ways of adjusting learning and teaching are to be found (Büyükyazı, 2010). Educators' instruction habits and styles, and students' progress are substantially affected by how educators comprehend learning a language (Büyükyazı, 2010). As a result, it is predicated that students' performance in learning a language may be touched not only by their own opinions about language learning, but also by those of their educators', yet there are only a finite number of studies on how educators' opinions have an impact (Cephe & Yalçın, 2015) .

2.11. The Correlation between Foreign Language Anxiety and Beliefs about Language Learning

There is a significant correlation between BALL, FLA, and strategies of language learning (Horwitz, 1995). Learners' opinions and notions about language learning are likely to be related to FLA, with motivation and learning strategies being other vital contributing causes affecting language learning (Horwitz, 1999). Gopang, Bughio, Memon, and Faiz (2016) found that student apprehension and notions are tough and compelling matters and also explored whether students' BALL contribute to their FLA. In the foreign language learning process, students' opinions and self-competence to learn a language are really the main contributing causes (Genc, Kulusaklı & Aydın, 2016).

Students' BALL play a key role in FLA. For instance, when learners have unfounded beliefs and these beliefs are not in accord with reality, anxiety comes to light (Young, 1991). Horwitz (1984) puts emphasis on the relation between language learning beliefs and anxiety and states that some notions cause learners to be tense and frustrated in the lesson. Also, main beliefs like being scared of making any mistakes, feeling an obligation to speak accurately, and being afraid of not knowing the meaning of any foreign lexical items make learners feel nervous and worried (as cited in Horwitz et al., 1986, p. 127).

In respect of creating a more effective language learning environment, teachers' beliefs about language education are indeed critical. Educators who do not permit group or pair-work, for fear that they will lose control of the class, who defend teacher-centered education, who believe that they should correct students immediately and constantly in case of any error, "who think their role is more like a drill sergeant's than a facilitator's" are one of the six anxiety-provoking sources (Young, 1991, p. 428).

The students' state of being conscious about the language learning process, their manner, and their ways of and principles about learning are touched by their judgments about language learning (Büyükyazı, 2010). If learners think that they are incapable of learning a foreign or second language, they tend to suffer from anxiety much more than others (Young, 1991).

Language instructors should give priority to learners' affective needs in the period of language learning, because emotional factors embracing motivation, FLA, and BALL indicate the extent to which pupils will be eager to become involved in the language tasks required for competence in L2 (Horwitz, 1995). In terms of classroom procedures, learners who feel that they are obliged to communicate in the foreign or second language among their peers, and who make incorrect utterances in front of their friends and as a consequence stay silent or seem tongue-tied, are consistently observed to exhibit anxious behavior (Young, 1991).

2.12. Empirical Studies on Anxiety and Foreign/Second Language Learning

2.12.1. The Effects of Foreign Language Anxiety on Academic Achievement

Great numbers of studies have discovered the fact that there is a significant negative correlation between FLA and students' school success (Chan & Wu, 2004; Doğan & Tuncer, 2016; Tuncer & Doğan, 2015a; Tanielian, 2014; Matsuda & Gobel, 2004). Besides, Matsuda and Gobel (2004) have also explored such other factors affecting students' school performance as foreign language experience, self-assurance during oral performance, gender and level of proficiency. From a different perspective, Vitasari, Wahab, Othman, Herawan, and Sinnadurai (2010) have stated that study apprehension has a significant negative impact on learners' school success.

Within the scope of the investigation of Taiwanese EFL primary school students' FLA, Chan and Wu (2004) collected data from 601 consciously selected students, including 18 overanxious students, and from nine English teachers, utilizing both quantitative and qualitative data collection tools, such as questionnaires, interviews, classroom observation and text file collection. The results of the study showed that there was a highly significant inverse relationship between FLA level and English learning performance.

Likewise, Doğan and Tuncer (2016) sought to determine whether factors such as gender, foreign country experience, level of average earnings and third language knowledge had a significant influence on FLA level and foreign language performance. The data were collected, through the Turkish version of FLCAS and students' grades, from 683 Turkish EFL engineering students from different departments studying in the obligatory English preparatory class. The results of the study revealed that FLA and foreign language achievement had a negative correlation.

Similarly, with the intention of determining the correlation between learners' anxiety levels in English lessons and their academic success, Tuncer and Doğan (2015a) conducted research with the participation of 271 Turkish EFL engineering students studying in the obligatory preparatory class at Fırat University, by using the FLCAS. The results of the study revealed that the participants' anxiety levels gradually

increased towards the end of the year, although they had been stable earlier, and that there was a significant negative correlation between the students' FLA, which derived from speaking anxiety in crowded classes, and their academic success.

In another study, Tanielian (2014) attempted to find out the extent to which there is a correlation between FLCA and academic success in the courses of English and mathematics taught by native speakers of English. The quantitative data of the research were collected from 424 Thai ESL state middle school students, through the FLCAS. The findings of the study showed that there was a negative correlation between FLCA and students' achievement on the English course.

Finally, Matsuda and Gobel (2004) aimed to investigate what kind of relationships there are among FLCA, reading anxiety, gender, foreign country experience and classroom performance. The researchers randomly chose 252 students, mostly female, aged 18-21, studying EFL in the first, second, and third classes at a university in Japan, with different levels of proficiency. Two different scales were administered to these subjects to measure their classroom anxiety and reading anxiety. The results revealed that students who have been to a country where the target native language is spoken are more confident in themselves while speaking English during the lesson than those without such experience. In short, foreign language experience has a vital impact on language learners in terms of self-assurance in verbal activities. Further, self-assurance during oral performance, gender, and level of proficiency are significantly correlated with language learners' performances in class.

From a different perspective, Vitasari et al. (2010) sought to analyze the impact of study apprehension on learners' school success. A total of 205 EFL sophomores studying in four different engineering departments contributed to the study in which the "State Trait Anxiety Inventory (STAI)" and "Grade Point Average (GPA)" were used to quantify the degree of apprehension and the level of school success, respectively. It was revealed that one of the paramount factors in students' school success is anxiety. Moreover, a significant negative correlation was observed between the level of study anxiety and school success. In other words, the more worried students are about studying, the less successful they are in their school subjects. Besides, students suffering from high anxiety exhibited a lack of

commitment to their school tasks, characterized by a low desire to learn and underperformance in homework or tests.

2.12.2. The Sources of Language Anxiety

The recent literature has shown that there are numerous causes of FLA (Al-Khasawneh, 2016; Lababidi, 2016; Chan & Wu, 2004).

In a Saudi context, Al-Khasawneh (2016) designed a study to explore learners' FLA levels, causes of this anxiety, and also whether FLA differs by studying level. A total of 97, non-randomly chosen, Saudi Arabian EFL learners, majoring in English at various proficiency levels took part in this study and filled in the FLCAS. Anxiety in communication, English class anxiety, fear of negative evaluation and exam anxiety were found to be causes of language anxiety experienced by the participants. Also the students' level of study was stated to have no effect on their anxiety level.

In a case study, Lababidi (2016) attempted to provide an insight into FLA experiences and perceptions. A total of 278 Arabian EFL male university students were asked to complete the FLCAS and were interviewed. The results showed that "teacher characteristics, pedagogical practices, fear of making errors, test taking, and previous experience of learning an additional language" were the five causes of language anxiety (p.190). At the same time, educators' behavior, speaking pace, accent, being native or not, and inequality in interest were found to be factors arising from teachers.

Chan and Wu (2004) conducted a study to investigate Taiwanese EFL primary school students' FLA and collected data from 601 consciously selected students, including 18 overanxious students, and 9 English teachers, utilizing both quantitative and qualitative data collection tools, such as questionnaires, interviews, classroom observation and text file collection. The five basic causes of FLA were described as poor competence, fear of negative evaluation, competition with each other, nervous character, and pressure derived from students themselves and their parents.

2.12.3. The Association between Language Anxiety, Motivation and the Use of Learning Strategies

In recent years, several studies have concentrated upon the relationship between language anxiety and motivation (Liu & Jackson, 2008; Kim, 2009; Wong, 2009; Nishitani & Matsuda, 2011). Nishitani and Matsuda (2011) have also described the links between language anxiety, motivation and learning strategies.

For instance, in order to determine Chinese EFL learners' loss of motivation for communicating and anxiety levels, Liu and Jackson (2008) administered a questionnaire with 70 items to 547 Chinese freshman students undertaking different majors, excluding English. The majority of the participants were found to be eager to take part in dialogue, yet did desire to take a chance to speak the target language in public. In addition, more than one-third of the subjects experienced anxiety in their English lessons for fear of negative evaluation, speaking English in class, and English exams. Also a significant positive correlation was found between loss of motivation for communicating, FLA, and most variables of interest.

Kim (2009) investigated whether FLA and motivational goal orientations changed in two separate class contexts, reading and speaking lessons, by administering four research instruments to 59 female Korean EFL university students. These tools were the Trait Anxiety Inventory (TAI) developed by Spielberger (1983), the adapted version of the FLCAS into Korean, the Achievement Motivation Questionnaire (AMQ) developed by Jung (1996), and a background questionnaire. Students' anxiety levels were found to differ in reading and speaking lessons. Besides, the participants were revealed to be more anxious in speaking lessons than in reading ones. However, in terms of motivation, lessons in two separate skills did not affect the students' goal orientation.

In another study, Wong (2009) researched the impact of anxiety and motivation on the process of learning a foreign language, English. A total of 177 EFL state middle school learners from different countries and ethnically different groups were chosen at random and administered an adapted version of the FLCAS and a questionnaire with open-ended questions. The results of the study indicated that there was no statistically significant correlation between gender and language learning

apprehension, yet boys were found to be less nervous than females about replying to questions in a voluntary way, speaking English in class, or being made fun of. Furthermore, more apprehensive language learners were revealed to strive less to enhance their English competence than less apprehensive learners.

Furthermore, concentrating on the extent to which learning strategies are influenced by language anxiety and internal motivation by being aware of failure, Nishitani and Matsuda (2011) conducted a study to investigate the potential links between LA, intrinsic motivation and the usage of language learning strategies. The Chinese-language survey was administered to 152 university students majoring in Japanese. The findings revealed that the language learning process may be affected by anxiety and being aware of failure. Highly internally motivated students make use of failure and various learning techniques more. On the contrary, students highly anxious about language learning think that the cause of their failure is anxiety and they cannot take as much advantage of learning strategies in order to cope with their failure.

2.12.4. The Relationship between Foreign Language Anxiety and Gender

Some linguists have declared that the level of FLA may be affected by gender differences. (Park & French, 2013; Elaldı, 2016). Whereas Park and French (2013) point out that females' level of FLA is higher than males', Elaldı (2016) states that male students have higher FLA than females.

Park and French (2013) discussed the relationship between gender and anxiety and also their effect on foreign language achievement by administering the FLCAS to 948 EFL undergraduates from Korea. The researchers took these subjects' final exam marks into consideration in order to identify their foreign language achievement. The findings of the study revealed that females' level of anxiety is higher than males.' In addition, females and students with a high level of anxiety are much more successful in school subjects than males and students with a low level of anxiety.

In contrast to the foregoing study, in order to investigate the FLA levels of Turkish EFL students majoring in the department of English Language and Literature at Cumhuriyet University in Sivas, Elaldı (2016) chose all 98 students of the preparatory class as participants, on a voluntary basis, and administered the FLCAS

to them twice, both when these subjects were in the preparatory class and when they became seniors. While the students presented a steady level of FLA in both classes, their anxiety level in their last year seemed to be a little higher than in the preparatory grade. In regard to gender, male students had higher FLA than females.

2.12.5. Feedback and Language Anxiety

In order to determine the effect of FLCA on students' ability to use English articles properly, and to develop their output by giving them reformative feedback in the form of recasts, Sheen (2008) conducted a study with 61 ESL students of an intermediate level of competence, studying in a neighborhood school in the USA, and four native speakers. The subjects were grouped as high and low according to their anxiety levels and then subdivided again, with one group receiving recast and a control group without recast. According to the results obtained from the language anxiety measurement questionnaire, the recast group with high-anxiety and the control group with low-anxiety performed worse in the dictation and writing task than the recast group with low-anxiety. The less nervous recast group was much more accomplished in modifying output. In conclusion, language anxiety was found to have a significant effect upon modifying output and in encouraging learning.

2.12.6. The Link between Language Anxiety and Fear of Negative Evaluation

In a Turkish context, Aydin (2008) examined the link between language anxiety and the fear of negative evaluation and also their causes and levels. The FLCAS and fear of negative evaluation scale were used and applied to 112 Turkish EFL learners studying in an English Language Teaching (ELT) program. LA and a fear of negative evaluation were stated to be the two significant determinants commonly affecting Turkish EFL learners. Moreover, LA was significantly linked to the fear of negative evaluation that the students had.

2.12.7. Test Anxiety

Several studies in the recent literature have investigated test anxiety in an EFL context (Rezazadeh & Tavakoli, 2009; Gursoy & Arman, 2016; Salehi & Marefat, 2014). Rezazadeh and Tavakoli (2009) discovered that test anxiety is not associated

with the students' study year, but with gender and academic success. Similarly, Gursoy and Arman (2016) have stated that test anxiety is directly related to gender, class level and academic performance. Also, Salehi and Marefat (2014) have shown that exam success is affected by test anxiety and FLA.

Rezazadeh and Tavakoli (2009) conducted a study with 110 Iranian EFL students majoring in English in order to define the association between exam anxiety, gender, academic success and study year. The students were at various proficiency levels and randomly chosen from all classes in the department. The results elicited from the Suinn's Test Anxiety Questionnaire showed that males were less anxious than females in respect of exam anxiety. In addition, there was a negative correlation between exam anxiety and academic success. That is, the more apprehensive the learners are during the exam, the less successful they become. Finally, no significant link was found between exam anxiety and study year.

In a Turkish context, concentrating on the association between learners' test anxiety level, gender, class level, and academic performance, Gursoy and Arman (2016) conducted a study so as to determine the basic sources of test anxiety which has a material adverse effect on the process of foreign language learning. Both qualitative and quantitative data were collected from 138 purposely selected Turkish EFL students studying in a vocational high school, by means of a scale for test anxiety and semi-structured interviews. The subjects were found to exhibit an average level of test anxiety. Also females and ninth-grade students were reported to have more exam anxiety than males or tenth-grade students. Lastly, test anxiety's main sources were identified as the validity of the exam, time limitation, educators' behaviors, exam strategies, invigilators, exam duration, exam atmosphere, and the comprehensibility of exam guidelines'.

Also, Salehi and Marefat (2014) concentrated on how FLA and exam anxiety influenced foreign language exam achievement and investigated the correlation between FLA and exam anxiety. A total of 200 EFL learners with a pre-intermediate level of proficiency were administered the FLCAS and the Test Anxiety Scale (TAS). The data results indicated a highly significant negative connection between exam success, FLA, and test anxiety as well as a close positive correlation between

FLA and test anxiety. Hence, these two anxieties affect foreign learners' exam success in a debilitating way.

2.12.8. Speaking Anxiety

Speaking anxiety has also been investigated by some linguists (Mak, 2011; Tsiplakides & Keramida, 2009; Bozavli & Gulmez, 2012). While Mak (2011) has classified fear of negative evaluation, feeling out of depth in a speech situation with natives, negative beliefs about English classes, evaluating themselves negatively, and fear of inefficacy as crucial factors causing foreign language speaking anxiety (FLSA), Tsiplakides and Keramida (2009) have indicated that students' fear of making a mistake and of negative evaluation, and a deficiency in self-confidence are major causes of speaking anxiety. Besides, Bozavli and Gulmez (2012) have stated that the level of speaking anxiety varies between speaking courses given by a native or non-native English speaker.

Mak (2011) examined what kind of factors caused FLSA. The researcher collected data using both quantitative and qualitative methods, through the FLCAS, interviews, discussion and observation, administered to 313 ESL freshman students from China. The fear of negative evaluation, feeling out of depth in a speech situation with natives, negative beliefs about English classes, evaluating themselves negatively, and fear of inefficacy were revealed to be crucial factors causing FLSA. Besides, the participants indicated that speaking off-the-cuff in public, explicit correction during speech, insufficient time to think, and prohibition of speaking the mother tongue (L1) were noteworthy causes of speaking anxiety.

In a Greek case study, Tsiplakides and Keramida (2009) investigated the causes of speaking anxiety in foreign language classes, as well as the ways to relieve speaking anxiety. This study determined to specify apprehensive learners' characteristics and to give educators some vital strategic information about how to overcome speaking anxiety. Fifteen Greek EFL middle school students with an intermediate level of proficiency were chosen, and semi-structured interviews, group discussions and direct monitoring were used as the qualitative data-collecting instruments. The results indicated that students' fear of making a mistake and of negative evaluation, and a deficiency in self-confidence are major causes of speaking anxiety. The main

characteristics of students with high FLSA are loss of motivation for communicating, their struggle to be grammatically accurate while speaking and over-monitoring themselves not to make any mistakes. Project work, a cooperative and motivating learning environment, implicit correction, use of portfolios, teacher's immediacy, and nonverbal reinforcers are crucial ways to tackle anxiety in speaking classes.

In another study, Bozavli and Gulmez (2012) analyzed the effects of speaking lessons given by a native and non-native English speaker on FLSA. The researchers gathered the data from 90 Turkish students, by administering a foreign language speaking anxiety scale (FLSAS) with 23 items. Thirty-eight of the participants were in a speaking class with natives in an ESL context and the other 52 with non-natives in an EFL context. The results of the study revealed that there was no statistically significant correlation between FLSA and the student groups. However, according to the mean opinion scores, the learners in a speaking class with a non-native speaker were concluded to be less apprehensive than those in a speaking class with a native speaker.

2.12.9. Listening Anxiety

FLA has almost invariably been conceived to be related to students' speaking performance, yet investigators have largely attempted to establish the causes of anxiety and its link with the other linguistic skills (Horwitz, 2001). But yet, very few studies have been carried out on the relation between FLA and listening comprehension, although a great number of studies have been conducted on the influence of anxiety (Bekleyen, 2009). Some studies have concentrated upon anxiety in listening (Serraj & Noordin, 2013; Bekleyen, 2009). Serraj and Noordin (2013) stated there was a significant negative correlation between students' foreign language listening anxiety (FLLA) and listening comprehension achievement. Bekleyen (2009) has shown that poor focus in listening and not being able to identify words or sentences while listening to them are two causes of students' listening anxiety.

In an Iranian context, Serraj and Noordin (2013) carried out a study to find out how language learners' listening abilities might be affected by FLA and FLLA. The data of the study were obtained by means of the FLCAS, the Foreign Language Listening Anxiety Scale (FLLAS) developed by Kim (2000), and a listening test adapted from

IELTS, from 210 EFL learners from Iran, studying in fee-paying language centers. A negative significant correlation was found between students' FLLA and listening comprehension achievement. Furthermore, there was a positive correlation between participants' levels of FLA and FLLA.

In another study, Bekleyen (2009) attempted to establish the level of FLLA that EFL students studying in the department of ELT had. The researcher followed a mixed method research methodology by using questionnaires, interviews, and listening exams. As participants, 71 Turkish freshman ELT students voluntarily took part in the study. The analysis of the data showed a direct correlation between students' FLLA and FLCA. Poor focus while listening and not being able to identify words or sentences while listening to them were causes of their listening anxiety. In addition, alienation from listening and physical signs were claimed to be important effects of FLLA.

2.12.10. Reading Anxiety

Apart from listening anxiety, some researchers have studied the anxiety associated with reading (Subası, 2014; Çapan & Pektaş, 2013; Jafarigohar & Behrooznia, 2012). Whereas Subası (2014) has specified six major causes of foreign language reading anxiety (FLRA) as personal causes, the educator's pattern of behavior in class, teaching method, the characteristics of the reading text, reading exam anxiety, and the student's personal experience, Çapan and Pektaş (2013) have specified the causes as text types, the educator's teaching method, and varied reading exercises. In addition, Jafarigohar and Behrooznia (2012) have discovered that reading comprehension skill and gender, but not age, have an impact on learners' FLRA.

In a Turkish EFL context, Subası (2014) attempted to prove that FLRA was a particular type of skill specific language anxiety and also to investigate reading anxiety's reasonable causes. A total of 55 Turkish EFL freshman students majoring in ELT in the Education Faculty were administered FLCAS and the Foreign Language Reading Anxiety Scale (FLRAS), and also interviewed about their opinions about reading anxiety. The results indicated that special causes, the educator's pattern of behavior in class, teaching method, the characteristics of the

reading text, reading exam anxiety, and the student's personal experience were found to be six major causes of FLRA.

In another study, Çapan and Pektaş (2013) attempted to explore the impact of FLRA on the teaching of reading strategies in foreign language reading classes. Thirty-nine Turkish EFL first-grade university students, majoring in ELT were separated into treatment and control groups and were administered an individual background questionnaire, a FLRAS, and semi-structured interviews. The findings emphasized that FLRA was related to the teaching of reading strategies, because the students' levels of FLRA differed in the treatment and control groups. Besides, no significant correlation was found to exist between gender-age factors and the participants' levels of FLRA. Also text types, the educator's teaching method, and varied reading exercises were found to be factors affecting learners' FLRA.

In an Iranian context, Jafarigohar and Behrooznia (2012) carried out a study to examine the effects of FLRA on reading comprehension ability, taking age and gender factors into consideration as variables. A total of 112 randomly chosen Iranian EFL third and fourth grade students majoring in English were asked to complete the FLCAS, a reading comprehension exam with 28 items, and an individual background questionnaire. A significant negative correlation was found between FLRA and reading comprehension skill; age was found to have no effects on reading anxiety; and also females were found to be more anxious than males.

2.12.11. Writing Anxiety

Recently, language researchers have investigated writing anxiety (Nodoushan, 2015; Woodrow, 2011). Nodoushan (2015) has found that situation-specific and trait anxieties have a facilitating impact on students' writing skill and achievements, although state anxiety has a debilitating effect. Woodrow (2011) discovered that students with poor self-sufficiency were not as successful in writing tasks as those with high self-sufficiency.

Nodoushan (2015) carried out a study in order to investigate the impact of anxiety on skill and achievement in writing in a foreign language. The researcher randomly chose 137 Iranian EFL university students and administered them the FLCAS, a

placement exam, and a writing activity. The results of the research revealed that situation-specific and trait anxieties have a facilitating impact on students' writing skill and achievements, although state anxiety has a debilitating effect. Besides, the use of relaxation techniques, wandering-off text strategies and the passive voice was found to be caused by state anxiety, rather than by the writer's intent to protect his or her reputation or by a politeness tendency.

Also, Woodrow (2011) has investigated the connection between writing anxiety and self-sufficiency. The researcher administered a questionnaire, open-ended questions, and a writing task to 738 Chinese EFL learners, being educated at four different universities in China. The findings suggested that students with poor self-sufficiency were not as successful in writing tasks as those with high self-sufficiency and, at the same time, that students that did not make much effort in language learning felt more nervous than those that did make an effort.

2.13. Empirical Studies on Beliefs about Foreign/Second Language Learning

2.13.1. Students' Beliefs about Language Learning

In the recent literature, whereas some studies have investigated learners' BALL (Altan, 2006; Alsamaani, 2012; Ariogul et al., 2009; Yonesala & Tanaka, 2013), others have analyzed the link between learner and teacher BALL and also their impact on language learning (Cephe & Yalçın, 2015; Büyükyazı, 2010). Students' beliefs were found to be influenced by teacher beliefs (Cephe & Yalçın, 2015; Büyükyazı, 2010).

In a Turkish context, Altan (2006) aimed to explore learners' feelings about language learning and administered the Beliefs about Language Learning Inventory (BALLI) to 248 Turkish language department undergraduates, from all-grades, undertaking five different majors in the Faculties of Education of five Higher Education Institutions. The participants were detected to have various beliefs, including that: a) some people have an innate talent for learning a foreign language, b) children are better than adults at language learning. It was argued that "myth" may be a more meaningful term for describing such beliefs. In other words, learners' preconceived attitudes to language learning were discovered.

Besides, Alsamaani (2012) sought to investigate the BALL held by 250 Saudi Arabian EFL freshman students educated in an English prep school. An adapted Arabic form of the BALLI was used. The investigation demonstrated that good and reasonable attitudes prevailed in respect of language learning, communication techniques, motivation, and anticipation.

In another Turkish context, Ariogul et al. (2009) conducted a study in order to investigate the ways in which the BALL of learners undertaking various majors, taught in English, French or German, differ. A total of 343 Turkish first-grade students, from universities in which certain departments use a foreign language as the medium of teaching, participated in the research and were asked to complete the BALLI and an individual background questionnaire. The certain beliefs of all of the learners in the three different languages of education were found to be likely to be harmful to their language learning process in the long run, whereas the students majoring in the French language were more hopeful in terms of learning a foreign language. So as to have learners cope with such damaging beliefs, favorable educational methods and realistic expectations should be promoted by foreign language educators.

In a Japanese context, Yonesala and Tanaka (2013) performed a study to determine the perspectives from which students look at language learning and whether their feelings show change or not. A total of 315 Japanese EFL freshman learners, studying at a fee-paying college, were administered a 45-item beliefs survey developed by Sakui and Gaies (1999), and their attitudes were observed by repeating the questionnaire each year from 2006 to 2011. A significant degree of stability was observed in the population's thoughts about the inadequacy of English courses, the significance of listening-speaking activities, and the effects of the culture itself and of intrinsic agents, despite variations in the curriculum. Besides, no significant link was found between the students' beliefs and instructional methods, however a significant relationship was revealed between students' beliefs and individual targets, selection of language, the increasing commonness of English, and even changes connected with society.

In contrast to the above studies, examining the connection between the views of learners and educators about learning a language, Cephe and Yalçın (2015)

investigated what undergraduates and academicians regard language learning to be. The researchers administered the BALLI to 620 Turkish EFL prep-class students. Also, a learner and an educator interview were carried out. Ultimately, students' beliefs were found to be influenced by teachers' beliefs and their implementation, and over time students' beliefs showed a tendency to resemble teachers'.

Along similar lines, Büyükyazı (2010) carried out a study in order to analyze how undergraduates and academicians perceive language learning and also to identify whether there is any difference in their attitudes toward language learning. The required data were collected from 156 Turkish EFL language learners and 19 Turkish EFL instructors through the Turkish version of the BALLI. The results of the research revealed that knowledge of a foreign language is regarded by most of the participants as necessary for entry into a satisfactory profession. Also, pointless learning methods, loss of motivation, the time it takes to learn a language, perceiving foreign language courses as a part of the curriculum, and a lack of self-confidence were found to affect the learning process adversely. Moreover, undergraduates' and instructors' BALL were found to show similarities.

2.13.2. The Association between Language Learning Beliefs, Learning Strategies and Academic Achievement

In the available literature, there are several studies investigating the link between BALL and learning strategies (Zarei & Rahmani, 2015; Azar & Saeidi, 2013), and also the association between BALL, learning strategies, and academic achievement (Suwanarak, 2012). A significant relationship has been found between learners' BALL and their choice of learning strategies (Zarei & Rahmani, 2015; Azar & Saeidi, 2013; Suwanarak, 2012).

Zarei and Rahmani (2015) carried out a study to explore the impact of BALL on strategy choices in learning language. The data were gathered, via the BALLI, the Strategy Inventory for Foreign Language Learning (SILL), and the Michigan Test of English Language Proficiency (MTELP), from 104 Iranian undergraduate and graduate EFL students studying in the department of English language. "Foreign language aptitude", "nature of foreign language learning", "learning and communication strategies", and "motivation and expectation" were found to be

significantly predicted by "meta-cognitive strategies". Also "the nature of foreign language" was found to be significantly predicted by "affective strategies". Finally, "learning and communication strategies" were found to be negatively predicted by "cognitive strategies" (p.1).

In another study, Azar and Saeidi (2013) conducted a study to analyze how students' preferences for learning methods vary according to their BALL. A total of 200 Iranian EFL students studying English from various language schools were asked for completing the BALLI and the SILL. A significant correlation was found between learners' beliefs and methods suggesting that the more high-powered approaches that students have, the more methods they tend to apply. Only "learning and communication strategies" and "foreign language aptitude" were reported to be crucial factors having an impact on all method preferences. Consequently, students' BALL play an important role in designating their preferences for learning strategies.

In order to shed light on what 220 Thai graduates, being educated on a master's program at a state university located in Thailand, perceive learning English to be, Suwanarak (2012) attempted to investigate these learners' beliefs, techniques and language learning performance. Both qualitative and quantitative data were gathered from the BALLI, the SILL, a background questionnaire, open-ended questions and interviews. According to the results, the majority of the participants did not believe themselves to be accomplished in learning English, apart from a few students who did use learning strategies. Furthermore, a significant relationship was found between the learners' BALL and their choice of learning strategies. In conclusion, learner BALL should be taken into consideration during the education process.

2.13.3. The Factors Affecting Beliefs about Language Learning

Recent research has discovered that a great number of factors affect BALL, such as the learners' language knowledge and ability to learn a foreign language, the learning environment and context (Fujiwara, 2011); EFL/ESL contexts and being exposed to more English in a language instructional program (Apairach & Vibulphol, 2015); dissimilar language competences (Wang & Rajprasit, 2015); self-efficacy (Genç et al., 2016); gender, instruction in a second foreign language, and overseas experience

(Hismanoglu, 2016); strategy education (Kojour & Heirat, 2015), and additional English courses (Saeb & Zamani, 2013).

Fujiwara (2011) investigated the BALL of students from Taiwan and Thailand and culture-related factors affecting BALL. A total of 542 EFL freshman students, studying in diverse departments of a public university in Thailand, participated in the study by completing the BALLI. The research findings showed that the learners' language knowledge and ability to learn a foreign language, the learning environment, and context were certain predictors of developing attitudes. Furthermore, the two Asian groups were found to have indistinguishable perceptions about learning, albeit without detailed consideration of their diverse culture-related experiences.

In two unlike learning environments, Apairach and Vibulphol (2015) aimed to investigate Thai high-school learners' BALL. A total of 458 final year high school students from six different colleges participated in the study and completed a modified Thai version of the BALLI 2.0 (Horwitz, 2012). Some of the participants were being educated according to the classic Thai government curriculum and the others, rather more than half of the sample group, were being educated in an instructional program in English. These two dissimilar groups' points of view were reported to become distinct. With respect to self-guided learning, such as being aware of the significance of using different sources, being able to exploit materials via the internet, being aware that superior communication skills would help learners to get a good job, and wishing to be able to communicate in English, the learners exposed to more English in the foreign language mediated instructional program displayed more facilitating, determined, promising and willing viewpoints. Moreover, the ESL atmosphere, in which the students were exposed to more English, was shown to be much more effective than the EFL environment, in terms of learning English.

In a Thai context, Wang and Rajprasit (2015) conducted a study to examine and compare the BALL of learners with dissimilar language competences and also to identify their most widespread positive manners. A total of 495 randomly chosen Thai EFL students, of low or high competence levels, completed an adapted version of the BALLI and a background survey. Knowledge of lexical items for learners of

low-competence and sustained practice for learners of high-competence were found to be prerequisites to achievement. Moreover, the most commonly-held positive attitudes, within both groups, were that everybody can communicate in English with regular practice; that immersion in the target language can enhance performance; and a desire to exploit English materials.

Taking account of the personal differences which affect the learning process, Genç et al. (2016) examined how students' self-sufficiency in English plays a role in forming their BALL. Quantitative information was obtained, via Turkish versions of the BALLI and "English Self-Efficacy Scale," from 210 Turkish EFL students studying in all grades of the ELT department of a state university. The subjects' self-competence was found to have an effect on their opinions. Also, participants were revealed to have a firm belief that motivation influences learners' progress, while they exhibited average levels of self-competence.

Furthermore, Hismanoglu (2016) has investigated the BALL of EFL learners studying in an English preparatory class and the links between BALL, gender, instruction in a second foreign language and overseas experience. The participants were 149 EFL students of similar linguistic competence, 18-23 years of age, being educated in the School of Foreign Languages of a state university in the western part of Turkey. According to the quantitative data results obtained from the BALLI, female students have more negative BALL than males, with regard to foreign language aptitude, the difficulty of language learning, as well as learning and communication strategies; language learners who have second foreign language knowledge have more positive attitudes in relation to foreign language aptitude, learning and communication strategies and the nature of language learning than those learners who do not; overseas experience has a positive impact on BALL regarding the difficulty of language learning, learning and communication strategies and the nature of language learning.

Furthermore, Kojour and Heirati (2015) conducted a study to create awareness of BALL with 198 randomly chosen EFL undergraduates from Iran and their English instructor. To gather data, the adapted version of the BALLI into Persian, an open-ended questionnaire and semi-structured interviews were used. At the beginning, every subject believed that learning English mostly consisted of lexical items and

grammatical rules, and they unwittingly concentrated on these two aspects. In the wake of training in strategy, they had all abandoned their non-realistic opinions and started to understand the sources better by gaining control of them.

In another study, Saeb and Zamani (2013) examined the similarities and differences between high-school learners' and English language school learners' strategy usage in learning a language and their BALL. As the data collecting instruments, the SILL by Oxford (1990) and the BALLI were implemented to 262 Iranian EFL students studying in all the grades of a high school. Nearly half of these subjects were receiving extra English education in private teaching institutions, while the others were receiving language education only in their state school. Students with or without additional English courses were found to differ considerably in terms of strategy usage and notions. In addition, "more memory, cognitive, compensation, meta-cognitive, and social strategies" were used by course learners (p.83). Besides, in relation to the difficulty of learning a language, motivation and anticipation, they were more confident than those without additional courses.

2.13.4. The Impact of Gender on Beliefs about Language Learning

Tercanlioglu (2005) aimed to investigate the relationship between BALL and gender. The BALLI was administered to 118 Turkish EFL university students studying in the department of ELT. The results did not reveal any significant correlation between students' BALL and their gender.

2.14. The Correlation between Foreign Language Anxiety and Beliefs about Language Learning

2.14.1. The Relationship between FLA and BALL

Some researchers have revealed that there is a significant correlation between FLA and BALL (Tran et al., 2013; Wang, 2005; Pramuktiyono & Wardhono, 2016; Zhang & Rahimi, 2014; Truitt, 1995; Er, 2011). However, Tittle (1997) found no significant link between FLA and BALL.

Tran et al. (2013) attempted to provide an insight into the extent to which foreign language learners and educators are familiar with the concept of FLA and the kind of

beliefs they have about FLA. The data were gathered from 419 Vietnamese EFL students majoring in the different departments of a university and also from eight EFL teachers, through questionnaires, interviews and learner autobiographies. The qualitative and quantitative data results indicated that FLA affected most of the learners in a negative way to some extent; that all of the learners recognized the concept of FLA beforehand; but, unfortunately, that educators disregarded it.

Focusing on the correlation between FLA and BALL, Wang (2005) conducted a study to investigate Chinese EFL learners' levels of FLA and BALL. Modified Chinese formats of the BALLI and FLCAS and a demographic background questionnaire were administered to 175 randomly chosen Chinese EFL freshman and sophomore undergraduates. Two items of the BALLI, namely "the difficulty about language learning" and "beliefs about foreign language aptitude" emerged as having an important effect on students' level of anxiety. In other words, a higher level of FLA was felt by those participants who thought that English was hard to learn and that they had a poor talent for learning a foreign tongue.

Likewise, Pramuktiyono and Wardhono (2016) aimed to investigate the link between FLA and BALL. Forty-nine Indonesian EFL sophomores majoring in the English language were administered the FLCAS and the BALLI. The subjects that regarded themselves as having more natural ability in learning English were observed to be less worried about speaking in the target language, and the learners who believed that English is an easy language to learn were also found to be less nervous, not only about communicating in the target language, but also about taking an English exam.

Moreover, Zhang and Rahimi (2014) conducted a study to compare the beliefs of overanxious students with those of low-anxiety students regarding "corrective feedback" (CF), in terms of its necessity, rate, timing, type, kinds of mistakes, and corrector preference, after they had been given information about CF's objectives, importance, and types. The FLCAS and CF surveys were administered to 160 EFL students from Iran, being educated in three different language schools. The students' were divided into a "high-anxiety group" and a "low-anxiety group," according to their FLA levels. The contrastive findings were not found to be significant. Similar notions about CF among the two anxiety groups were explored, without considering

their FLA levels. In English speaking courses, they were found to prefer being corrected by means of high levels of CF.

In another study, Truitt (1995) aimed to examine Korean EFL university students' FLA levels and BALL, by concentrating on the connection between FLA and BALL. A total of 204 students were administered the Korean versions of the BALLI and FLCAS, and a personal information form. Learners' former experiences and cultural richness were found to have an effect on their BALL. Also, these participants were observed to suffer more from FLA than those in other studies (Aida, 1994; Horwitz et al., 1986). In this case, individuals having certain cultures were reported to feel more anxiety than those from different cultures. It was found that FLA might be caused especially by a lack of self-assurance during communication in the target language, and by opinions about the difficulty of language learning, as two separate belief agents.

Finally, Er (2011) examined whether or to what extent foreign language performance can be affected by FLA and BALL. A total of 535 Turkish Anatolian high-school students from all years, learning one of the languages English, German or French in obligatory foreign language lessons, contributed to this study by filling in the BALLI, FLCAS and a "General Information Form". In addition, pupils' marks in language lessons were used. A significant positive correlation was observed between FLA and BALL.

Contrary to the above studies, Tittle (1997) investigated the extent to which learners' unreasonable BALL and FLA influence their performance. Ninety-four graduate and undergraduate students, of different ages and with different language levels, learning one of ESL, Spanish or Russian were administered the FLCAS and the "Irrational Beliefs Test (IBT)" by Jones (1969). No significant realtionships were found between FLA and BALL.

2.14.2. The Effects of FLA and BALL on Student Success

A limited number of studies have concentrated on the impacts of not only FLA but also BALL on student success in foreign language lessons (Er, 2011; Tittle, 1997). Whereas Er (2011) reported a significant positive correlation between FLA, BALL

and student success, Tittle (1997) stated that no significant links were found between FLA and BALL; that FLA had an impact on student performance in an adverse way; but that unreasonable BALL had no impact on student performance.

Er (2011) examined whether or to what extent foreign language performance can be affected by FLA and BALL. A total of 535 Turkish Anatolian high-school students, from all years, learning one of the languages English, German or French in obligatory foreign language lessons, contributed to this study by filling in the BALLI, FLCAS, and a "General Information Form". In addition, pupils' marks in language lessons were used. First, a significant affirmative correlation was observed between FLA, BALL, and student success. Second, the performance, levels of anxiety, and beliefs of the three groups differed greatly. Third, pupils' achievements varied significantly by gender. Next, the anxiety levels of the three groups differed significantly in relation to the total earnings of the household and the parents' level of education. Finally, gender, the father's job, household earnings, the parents' level of education, the number of siblings, people in the family with knowledge of a foreign language and the number of such people, and different obligatory foreign languages were all revealed to be instrumental in affecting achievement, FLA and BALL in some way.

Contrary to the above study, Tittle (1997) investigated the extent to which learners' unreasonable BALL and FLA influence their performance. Ninety-four graduate and undergraduate students, of different ages and with different language levels, learning one of ESL, Spanish or Russian were administered the FLCAS and the "Irrational Beliefs Test (IBT)" by Jones (1969). No significant links were found between FLA and unreasonable BALL. Besides, it was revealed that FLA had an impact on student performance in an adverse way, whereas unreasonable BALL were reported to have no impact on student performance.

2.14.3. The Association between Foreign Language Anxiety and Self-efficacy

Lately, some studies have concentrated on the impact of self-efficacy on FLA (Tuncer & Doğan, 2015b; Cubukcu, 2008; Woodrow, 2011). A statistically significant negative correlation was found between FLA and self-efficacy (Cubukcu,

2008). Also, self-efficacy has been found to have an effect on the link between writing achievement and FLA (Woodrow, 2011).

Tuncer and Doğan (2015b) sought to examine the effect of self-efficacy on FLA levels, and also the impact of gender, major, and the type of high school that students had finished on the level of FLA and self-efficacy. A total of 271 Turkish EFL engineering students from different fields, studying in the English preparation class, were administered adapted Turkish versions of the "Academic Self-Efficacy Scale" by Owen and Froman (1988) and the FLCAS. The students' opinions about communication apprehension in English and anxiety about speaking with natives, and in the survey as a whole were found to be similar. Females were found to be more concerned with English than males. Also, learners' opinions about individuals' positions in society and technical abilities were almost the same. Finally, in the survey as a whole, the fields of "civil, environmental and machinery engineering" were found to differ.

Furthermore, Cubukcu (2008) sought to examine the link between FLA and self-efficacy. The FLCAS and the Self-efficacy Scale were administered to 100 Turkish EFL third-year students majoring in the department of ELT. A statistically significant negative correlation was found between FLA and self-efficacy. No significant correlation was found between gender, anxiety and self-sufficiency.

Woodrow (2011) carried out a study to investigate the effects of FLA and self-efficacy on English writing achievement. The researcher administered a survey on learners' self-efficacy and degree of apprehension in English writing, open-ended questions and a writing activity to 738 Chinese EFL undergraduates undertaking a set of different majors at four higher education institutions. The results revealed that self-efficacy and FLA were predictors of achievement in writing. Second, self-efficacy was found to have an effect on the link between writing achievement and FLA, which corroborates Bandura's (1986) "social cognitive theory of learning," in which students' notions of self-efficacy can be affected by psychological factors. Third, learners of high capacity were found to spend more time on English, not to suffer so much from family pressure, and to possess a rich sense of endeavor, whereas worried learners were reported to suffer from family pressure more

frequently and to possess a low sense of endeavor and to display low endeavor in reality.

2.14.4. The Relationship between Language Anxiety and Students' Attitudes towards English

Pan and Akay (2015) analyzed the impact of students' attitudes towards English lessons on FLA, and found no significant relationship between them. Han, Tanriöver and Şahan (2016) examined learners' and teachers' attitudes towards FLSA and found that gender and native or non-native English speaker classes did not have a significant impact on students' attitudes towards FLSA.

In a Turkish context, Pan and Akay (2015) sought to investigate whether there was any correlation between learners' attitudes toward English lessons and their FLA levels. To collect data, 280 Turkish EFL freshman students undertaking different majors in the Faculty of Education of a university were administered two surveys, open-ended questions and a background questionnaire. Learners' thoughts about English lessons were revealed to have no effect on their levels of FLA. However, the participants that thought about language lessons in a positive way were reported to be more nervous. Lastly, a link was observed between FLA and parents' educational background.

In another Turkish context, Han et al. (2016) investigated the correlation between speaking lessons delivered by native speakers of English and non-native speakers of English and FLSA. Forty-eight Turkish EFL engineering students studying in the preparatory class were asked to complete a questionnaire measuring their beliefs about FLSA, and also the researchers interviewed some of the participants about their beliefs, ideas and feelings regarding the impact on their FLSA levels of native and non-native speakers in speaking lessons. The participants were separated randomly into four groups. Two of them were given speaking lessons by natives and the other two by non-natives. The results showed that gender and native or non-native English speaker classes did not have any significant impact on the students' attitudes towards FLSA. Moreover, speaking mistakes were approached positively by both learners and educators. Finally, teacher correction techniques were found to affect learners' attitudes towards FLSA.

2.15. Studies in the Context of STEM

2.15.1. Studies on FLA in the Context of STEM

In the available literature on FLA, only one study has been conducted with engineering students in the context of STEM (Vitasari et al., 2010). Vitasari et al. (2010) observed an important negative correlation between the level of study anxiety and school success. On the other hand, two more studies have been carried out with engineering students studying in the preparatory class, and they reported a negative correlation between FLA and foreign language achievement (Doğan & Tuncer, 2016; Tuncer & Doğan, 2015a).

Vitasari et al. (2010) sought to analyze the impact of study apprehension on learners' school success. A total of 205 EFL sophomores, studying in four different engineering departments contributed to the study. The "State Trait Anxiety Inventory (STAI)" and "Grade Point Average (GPA)" were used to quantify the degree of apprehension and school success, respectively. A significant negative correlation was observed between the level of study anxiety and school success. In other words, the more worried students are about studying, the less successful they are in their school subjects.

Doğan and Tuncer (2016) set out to identify whether factors such as gender, experience in a foreign country, level of average earnings, and third language knowledge had a significant influence on FLA level and foreign language performance. The data were collected, through the Turkish version of the FLCAS and students' grades, from 683 Turkish EFL engineering students from different departments, studying in the obligatory English preparatory class. The results of the study revealed that FLA and foreign language achievement were negatively correlated.

Similarly, in order to determine whether there was any correlation between learners' anxiety levels in English lessons and their academic success, Tuncer and Doğan (2015a) conducted a study, using the FLCAS, with the participation of 271 Turkish EFL engineering students studying in the obligatory preparatory class at Fırat University. The results of the study revealed that the participants' anxiety levels

gradually increased towards the end of the year, although they had been stable earlier, and that there was a significant negative correlation between academic success and the students' FLA, which derived from speaking anxiety in crowded classes.

2.15.2. Studies on BALL in the Context of STEM

In the available literature on BALL, there are no studies conducted in the context of STEM. This fact increases the importance of this study.

2.15.3. Studies on the Correlation between FLA and BALL in the Context of STEM

In the context of STEM, there are two studies conducted with engineering students (Tuncer & Doğan, 2015b; Han et al., 2016). Tuncer and Doğan (2015b) found that self-competence affects FLA level. Han et al. (2016) have shown that gender and speaking courses with native and non-native English speaker do not have any roles in students' attitudes towards FLSA.

Tuncer and Doğan (2015b) aimed to examine the effect of self-efficacy on FLA levels, and also the impact of gender, major, and the type of high school that students had attended on their levels of FLA and self-efficacy. A total of 271 Turkish EFL engineering students from different fields studying in the English preparatory class were administered adapted Turkish versions of the "Academic Self-Efficacy Scale" by Owen and Froman (1988) and the FLCAS. The students' opinions about communication apprehension in English and anxiety about speaking with natives, and in the survey as a whole, were found to be similar. Females were found to be more concerned about English than males. Moreover, learners' opinions about individuals' positions in society and technical abilities were almost the same. Finally, in the survey as a whole, the fields of "civil, environmental and machinery engineering" were found to differ.

In another Turkish context, Han et al. (2016) investigated the correlation between speaking lessons delivered by native speakers of English or non-native speakers of English and FLSA. Forty-eight Turkish EFL engineering students studying in the preparatory class were asked to complete a questionnaire measuring their beliefs

about FLSA, and the researchers also interviewed some of the participants about their beliefs, ideas and feelings regarding the effect on their FLSA levels of native and non-native speakers in speaking lessons. The participants were randomly separated into four groups. Two of them were given speaking lessons by natives and the other two by non-natives. The results showed that gender and native or non-native English speaker classes did not have any significant impact on students' attitudes towards FLSA. Moreover, speaking mistakes were approached positively by both learners and educators. Finally, teacher correction techniques were found to affect learners' attitudes towards FLSA.

2.16. Summary of Reviewed Literature

As a summary, Table 1 presents the empirical studies on FLA reviewed in section 2.13. of the study.

Table 1. The empirical studies reviewed on FLA (2004-2016)

Author(s) and Year of Publication	**Country / Region of Study**	**Participants**	**Foreign Language Learnt**	**Type of Research**	**Major Data Collection and Instrument(s)**	**Purpose/ Topic of Study**
Chan and Wu (2004)	Taiwan	601 elementary school students, 18 overanxious students among them, and 9 English teachers	EFL	Quantitative and Qualitative	English Learning Experience Questionnaire, FLCAS, interviews with students and teachers, classroom observations, and text file collection	The investigation of Taiwanese EFL primary school student's FLA and this anxiety's sources
Matsuda and Gobel (2004)	Japan	252 pupils studying in the first, second, and third classes at a university	EFL	Quantitative	FLCAS and FLRAS	The association between FLA, reading anxiety, gender, foreign country experience, and classroom performance
Aydin (2008)	Turkey	112 learners studying in ELT program	EFL	Quantitative	An adapted version of FLCAS, a	The link between language

					scale for fear of negative evaluation (FNE) that Leary (1983) developed, and a background questionnaire	anxiety and fear of negative evaluation and also their causes and levels
Liu and Jackson (2008)	China	547 freshman students undertaking different majors except for English	EFL	Quantitative	UCS (Unwillingness to Communicate Scale), LCR (Language Class Risk-Taking Scale), LCS (Language Class Sociability Scale), English-Learning Background, and FLCAS	Determining Chinese students' loss of motivation for communicating and anxiety level
Sheen (2008)	United States	61 students with intermediate competence level studying in a neighborhood school in USA and 4 native speakers as teachers	ESL	Quantitative	2 Narrative tasks and Language Anxiety Questionnaire	Determining the effect of FLA on students' ability to use English articles in an proper way and to develop their outputs by being given reformative feedback in the way of recasts
Bekleyen (2009)	Turkey	71 freshman ELT students	EFL	Quantitative and Qualitative	FLCAS, FLLAS that Kim (2005) developed, a background questionnaire, interviews, and final listening exam marks	Researching the level of FLLA of EFL students studying in the department of ELT
Kim (2009)	Korea	59 female university students	EFL	Quantitative	TAI, the adapted version of FLCAS into Korean, AMQ, and a background	A deeper insight into whether FLA and motivational goal orientations

					questionnaire	changed in two separate class contexts, reading and speaking lessons
Rezazadeh and Tavakoli (2009)	Iran	110 students majoring in English with unlike proficiency levels and randomly chosen from all classes in the department	EFL	Quantitative	The Suinn's Test Anxiety Questionnaire with 48-items	The association between exam anxiety, gender, academic success, and study year
Tsiplakides and Keramida (2009)	Greece	15 middle school students with intermediate proficiency level	EFL	Qualitative	Semi-structured interviews, group discussions, and direct monitoring	The investigation of the causes of speaking anxiety in foreign language classes as well as of the ways to relieve speaking anxiety
Wong (2009)	Malaysia	177 state middle school learners from different countries and ethnically different groups	EFL	Quantitative	An adapted version of FLCAS and a questionnaire with open-ended questions	The impact of anxiety and motivation on the process of learning a foreign language, English
Vitasari, Wahab, Othman, Herawan, and Sinnadurai (2010)	Malaysia	205 sophomores studying in 4 different engineering departments	EFL	Quantitative	STAI and GPA	Analyzing learning apprehension's impact on learners' school success
Mak (2011)	China	313 freshman students	ESL	Quantitative and Qualitative	FLCAS, interviews, discussion, and observation	Exploring the factors causing FLSA
Nishitani and Matsuda (2011)	China	152 university students majoring in the language,	Japanese	Quantitative	The Chinese-language survey	The link between LA, intrinsic motivation, and the usage

		Japanese				of language learning strategies
Woodrow (2011)	China	738 learners educated at 4 different universities	EFL	Quantitative and Qualitative	A questionnaire with open-ended questions and a writing task	The effect of writing anxiety on self-sufficiency
Bozavli and Gulmez (2012)	Turkey	90 university students	EFL and ESL	Quantitative	FLSAS with 23-item	The effects of speaking lessons given by a native and non-native English speaker on FLCA
Jafarigohar and Behrooznia (2012)	Iran	Randomly chosen 112 third and fourth grade students majoring in English	EFL	Quantitative	FLCAS, reading comprehension exam with 28 items and individual background questionnaire	Examining the effects of FLRA on reading comprehension ability by taking age and gender factors into consideration as variables
Çapan and Pektaş (2013)	Turkey	39 first-grade university students undertaking major in ELT	EFL	Quantitative and Qualitative	FLRAS, semi-structured interviews, and an individual background questionnaire	Exploring the impact of FLRA on education in reading strategies in FL reading classes
Park and French (2013)	Korea	948 undergraduates	EFL	Quantitative	FLCAS and participants' final marks	The gender variable in FLA and the effect of gender and anxiety on students' foreign language achievement
Serraj and Noordin (2013)	Iran	210 students that were studying in fee-paying language centers	EFL	Quantitative	FLCAS, FLLAS, and a listening test adopted from IELTS	The effects of FLA and FLLA on language learners' listening abilities
Salehi and Marefat (2014)	Iran	200 learners with pre-intermediate level of	EFL	Quantitative	TAS (Test Anxiety Scale) that Sarason (1975) developed,	The impacts of FLA and exam anxiety on foreign language exam

		proficiency			FLCAS, and students' final examination	achievement and also the potential relationship between FLA and exam anxiety
Subası (2014)	Turkey	55 freshman students majoring in ELT in Education Faculty	EFL	Quantitative and Qualitative	FLCAS, FLRAS, and interviews	Proving that FLRA was a particular type of skill specific language anxiety and also investigating reading anxiety's reasonable causes
Tanielian (2014)	Thailand	424 state middle school students	ESL	Quantitative	FLCAS and students' midterm exam grades	The relation between students' FLA and their performance in English and mathematics courses
Nodoushan (2015)	Iran	Randomly chosen 137 university students	EFL	Quantitative	FLCAS, the Oxford Placement Test (OPT), and a writing activity	The impact of anxiety on writing skill and achievement in foreign language
Tuncer and Doğan (2015a)	Turkey	271 engineering students studying in the obligatory preparatory class at Fırat University	EFL	Quantitative	FLCAS adapted into Turkish by Gürsu (2011)	The relationship between learners' FLA levels and their academic success
Al-Khasawneh (2016)	Saudi Arabia	non-randomly chosen 97 learners majoring in English with unlike proficiency levels	EFL	Quantitative	FLCAS	The level and sources of Saudi university students' FLA
Doğan and Tuncer (2016)	Turkey	683 engineering students from different	EFL	Quantitative	The Turkish version of FLCA and students' grades	The impact of gender, foreign country experience,

		departments studying in the obligatory English preparatory class				level of average earnings, and third language knowledge on FLA level and foreign language performance
Elaldı (2016)	Turkey	98 university students majoring in the department of English Language and Literature at Cumhuriyet University in Sivas	EFL	Quantitative	FLCAS	Determining the FLA level of students majoring in the department of English Language and Literature
Gursoy and Arman (2016)	Turkey	138 students studying in a vocational high school	EFL	Quantitative and Qualitative	A scale for test anxiety developed by Sarason (1984) and semi-structured interviews with three open-ended questions	Determining the basic sources of test anxiety and the association between learners' test anxiety level and gender, class level, and academic performance
Lababidi (2016)	United Arab Emirates	278 male university students	EFL	Quantitative and Qualitative	FLCAS and focus group interviews	Investigation into FLA experiences, perceptions, and its causes

Table 2 presents the empirical studies on BALL reviewed in section 2.14. of the study.

Table 2. The empirical studies reviewed on BALL (2005-2016)

Author(s) and Year of Publication	Country / Region of Study	Participants	Foreign Language Learnt	Type of Research	Major Data Collection and Instrument(s)	Purpose/ Topic of Study
Tercanlioglu (2005)	Turkey	118 university students studying in the department of ELT	EFL	Quantitative	BALLI	The potential relation between learners' BALL and their genders
Altan (2006)	Turkey	248 language department undergrads from all-grades undertaking 5 different majors in the Faculties of Education of 5 Higher Education Institutions	English, German, French, Japanese, and Arabic	Quantitative	BALLI	Exploring learners' BALL
Ariogul, Unal, and Onursal (2009)	Turkey	343 first-grade students who were undertaking different majors in the languages of English, French, and German	English, French, and German	Quantitative	BALLI and an individual background questionnaire	Investigating if or in what aspects students' BALL differ
Büyükyazı (2010)	Turkey	156 language learners and 19 Turkish EFL instructors	EFL	Quantitative	BALLI's Turkish version	Analyzing how undergraduates and academicians perceive language learning and also identifying whether they make a difference in their attitudes toward language learning
Fujiwara (2011)	Thailand	542 freshman students studying in the diverse	EFL	Quantitative	BALLI	Investigation into BALL of students from Taiwan and

		departments of a public university				Thailand and culture-related factors affecting BALL
Alsamaani (2012)	Saudi Arabia	250 freshman students educated in an English prep school	EFL	Quantitative	An adapted Arab form of BALLI	Investigating students' BALL
Suwanarak (2012)	Thailand	220 graduates educated in a master's program of a state university	EFL	Quantitative and Qualitative	BALLI, SILL, a background questionnaire, open-ended questions, and interviews	Identifying learners' beliefs, techniques, and performances in terms of language learning
Azar and Saeidi (2013)	Iran	200 students studying English from various language schools	EFL	Quantitative	BALLI and SILL	Analyzing how students' preferences for learning methods show an alteration according to their BALL
Saeb and Zamani (2013)	Iran	262 students studying in the all grades of high school	EFL	Quantitative	SILL and BALLI	The similarities and differences between high-school learners' and English language school learners' strategy usage in learning a language and BALL
Yonesala and Tanaka (2013)	Japan	315 freshman learners studying at a fee-paying college	EFL	Quantitative	Beliefs survey with 45-item developed by Sakui and Gaies (1999) and an in-house placement test in English	Identifying students' BALL and exploring whether their feelings show a change
Apairach and Vibulphol	Thailand	458 final year lyceum students from 6 different	EFL and ESL	Quantitative	A modified Thai form of BALLI	Investigating how Thai high-school learners in

(2015)		colleges				two unlike learning environments regard learning a foreign tongue
Cephe and Yalçın (2015)	Turkey	620 prep-class students	EFL	Quantitative and Qualitative	BALLI and interviews with a learner and an educator	Determining learners' and educators' BALL and also examining the impact of educators' BALL on learners' BALL
Kojour and Heirati (2015)	Iran	Randomly chosen 198 undergraduates and their English instructor	EFL	Quantitative and Qualitative	The adapted version of BALLI into Persian, open-ended questionnaire, and semi-structured interviews	Creating learners' consciousness of their notions of English lessons
Wang and Rajprasit (2015)	Thailand	495 students with low and high competence levels	EFL	Quantitative	An adapted form of BALLI and a background survey	Analyzing how learners with dissimilar language competences approach foreign language learning
Zarei and Rahmani (2015)	Iran	104 undergrads and graduates students studying in the department of English language	EFL	Quantitative	BALLI, SILL, and MTELP	Exploring the impact of BALL on method choices in learning language
Genç, Kuluşaklı, and Aydın (2016)	Turkey	210 state university students studying in all-grades of ELT department	EFL	Quantitative	Turkish versions of BALLI and the English Self-Efficacy Scale	An insight into how students' English self-sufficiency plays a role in their forming BALL
Hismanoglu (2016)	Turkey	149 students of 18-23 years	EFL	Quantitative	BALLI	Identifying BALL of

		of age educated in the School of Foreign Languages of a public university in the western part of Turkey and with similar linguistic competence				learners in the English prep class and determining the effects of gender, instruction of second foreign language, and overseas experience on students' BALL

Table 3 presents the empirical studies on the correlation between FLA and BALL reviewed in section 2.15. of the study.

Table 3. The empirical studies reviewed on the correlation between FLA and BALL (1997-2016)

Author(s) and Year of Publication	**Country/ Region of Study**	**Participants**	**Foreign Language Learnt**	**Type of Research**	**Major Data Collection and Instrument(s)**	**Purpose/ Topic of Study**
Tittle (1997)	USA	94 grad and undergrad students of different ages and with different language levels	Russian, Spanish, and ESL	Quantitative	FLCAS and IBT	The impact of learners' unreasonable BALL and their FLA on their performance
Wang (2005)	China	175 freshman and sophomore undergrads randomly chosen	EFL	Quantitative	Modified Chinese formats of BALLI, FLCAS, and a demographic background questionnaire	The correlation between FLA and BALL
Cubukcu (2008)	Turkey	100 third-year students majoring in the department of ELT	EFL	Quantitative	FLCAS and Self-efficacy Scale	The association between FLA and self-efficacy
Er (2011)	Turkey	535 Anatolian high-school all-years students learning one of the	English, German, and French	Quantitative	BALLI, FLCAS, a general information form, and students' marks in	Investigating whether or to what extent foreign language performance can be

		languages English, German, and French as required foreign language course			language lessons	affected by FLA and BALL
Woodrow (2011)	China	738 undergraduates undertaking a set of different majors at 4 higher education institutions	EFL	Quantitative and Qualitative	A questionnaire with open-ended questions and a writing task	Investigating the effects of FLA and self-competence on English writing accomplishment
Tran, Baldauf, and Moni, (2013)	Vietnam	419 students majoring in the different departments of a university and also 8 EFL teachers	EFL	Quantitative and Qualitative	A questionnaire for learners (including a background information questionnaire, the Generalized Belief Measure (GBM), the Generalized Attitude Measure (GAM), and FLCAS), a questionnaire for educators (including a background information questionnaire, GBM, and GAM), interviews with learners and educators, and lastly learner autobiographies	An insight into the extent to which foreign language learners and educators are familiar with the concept of FLA and what kind of beliefs they have about this concept
Zhang and Rahimi (2014)	Iran	160 students educated in 3 different language schools	EFL	Quantitative	FLCAS and CF questionnaires	Identifying students' FLA levels and their notions of corrective feedback in speaking

						classes
Pan and Akay (2015)	Turkey	280 freshman students undertaking different majors in the Faculty of Education of a university	EFL	Quantitative and Qualitative	"Personal Information Form", "Open-Ended Questions Form", "Attitude Scale for English Course" that Aydoslu (2005) developed, and FLCAS that Aydın (1999) adapted into Turkish (p. 79)	The correlation between learners' attitudes toward English lessons and their FLA levels
Tuncer and Doğan (2015b)	Turkey	271 engineering students of different fields studying in the English preparation class	EFL	Quantitative	Adapted Turkish forms of Academic Self-Efficacy Scale and FLCAS	The effects of learners' self-competence notions on FLA levels and also the impacts of gender, majors, and lyceum types on their FLA levels and self-competence notions
Han, Tanriöver and Şahan (2016)	Turkey	48 engineering students studying in the preparatory class	EFL	Quantitative and Qualitative	A questionnaire for examining students' attitudes toward FLSA, semi-structured open-ended questions, and interviews with students and teachers in person	The investigation of the correlation between speaking lessons delivered by native speaker of English and non-native speaker of English and FLSA
Pramuktiyono and Wardhono (2016)	Indonesia	49 sophomores majoring in English language	EFL	Quantitative	FLCAS and BALLI	Investigating the link between FLA and BALL

Table 4 presents the empirical studies on FLA in the context of STEM reviewed in section 2.16.1. of the study.

Table 4. The empirical studies reviewed on FLA in the context of STEM (2010-2016)

Author(s) and Year of Publication	Country / Region of Study	Participants	Foreign Language Learnt	Type of Research	Major Data Collection and Instrument(s)	Purpose/ Topic of Study
Vitasari, Wahab, Othman, Herawan, and Sinnadurai (2010)	Malaysia	205 sophomores studying in 4 different engineering departments	EFL	Quantitative	STAI and GPA	Analyzing learning apprehension's impact on learners' school success
Tuncer and Doğan (2015a)	Turkey	271 engineering students studying in the obligatory preparatory class at Fırat University	EFL	Quantitative	FLCAS adapted into Turkish by Gürsu (2011)	The relationship between learners' FLA levels and their academic success
Doğan and Tuncer (2016)	Turkey	683 engineering students from different departments studying in the obligatory English preparatory class	EFL	Quantitative	The Turkish version of FLCA and students' grades	The impact of gender, foreign country experience, level of average earnings, and third language knowledge on FLA level and foreign language performance

Table 5 presents the empirical studies on the correlation between FLA and BALL in the context of STEM reviewed in section 2.16.3. of the study.

Table 5. The empirical studies reviewed on the correlation between FLA and BALL in the context of STEM (2015-2016)

Author(s) and Year of Publication	Country/ Region of Study	Participants	Foreign Language Learnt	Type of Research	Major Data Collection and Instrument(s)	Purpose/ Topic of Study
Tuncer and Doğan (2015b)	Turkey	271 engineering students of different fields studying in the English preparation class	EFL	Quantitative	Adapted Turkish forms of Academic Self-Efficacy Scale and FLCAS	The effects of learners' self-competence notions on FLA levels and also the impacts of gender, majors, and lyceum types on their FLA levels and self-competence notions
Han, Tanriöver and Şahan (2016)	Turkey	48 engineering students studying in the preparatory class	EFL	Quantitative and Qualitative	A questionnaire for examining students' attitudes toward FLSA, semi-structured open-ended questions, and interviews with students and teachers in person	The investigation of the correlation between speaking lessons delivered by native speaker of English and non-native speaker of English and FLSA

CHAPTER THREE

3. METHODOLOGY

3.1. Introduction

This chapter presents the following sections and sub-sections. First, the model of the study, the target population and the participants; next, the profiles of the participants and the data collection instruments, including a) individual background questionnaire, b) FLCAS, c) BALLI, d) open-ended questions and e) informed consent form, as well as the data collection procedure, respectively. Finally, the process of data analysis is presented in detail.

3.2. Model of the Study

This study followed a mixed method research methodology. In order to identify the research problem more clearly, understand it in depth, and investigate the research object thoroughly, an exploratory research method was applied. Within the context of the quantitative data collection method, two different scales were used: the Foreign Language Anxiety Classroom Anxiety Scale (FLCAS) (Horwitz et al., 1986) and the Beliefs about Language Learning Inventory (BALLI) (Horwitz, 1988). As for the qualitative data, three open-ended questions regarding the participants' FLA and 5 open-ended questions regarding their BALL were asked in written form under each scale in order to gain a deeper understanding of learner beliefs and anxiety, as well as to support the findings obtained from the quantitative data. In this way, the essential data were collected via mixed data collection instruments to investigate this important issue in depth, and were examined both separately and associatively.

3.3. Target Population and Study Population

All students in the Engineering Departments of state universities in Turkey whose medium of instruction is at least 30% English are the 'population' and its number is 21,750. 482 Turkish EFL STEM freshman students in the various Departments of Engineering at four state universities are the 'sample'.

The sample size was determined according to Cohen, Manion, and Morrison (2005)'s calculation of the relationship between sampling error and reliability level (as cited in Alkın, 2012). According to the table, a study population of 482 people is sufficient to represent a target group of 21,750 people, at a significance level of .05 and with almost 97% reliability. Table 6 shows the Sample Size Table that demonstrates the reliability level and significance level percentage of the sample number in question.

Table 6. The Sample Size Table showing reliability level and significance level percentage of the sample number in question

Significance Level +/-=	5%
Population Size=	21,750
	calculate

Sample Size=	482
Population Size=	21,750
Percent=	2.2%

Reliability Level	90%	95%	98%	99%
Proposed Sample Size	268	378	529	644

Reliability Level	90%	95%	98%	99%
Error	3.70	4.41	5.24	5.80

In order to determine the distribution of the sample according to the universities and departments, the 'Stratified Sampling Method' was used. This method is used in situations where sub-groups determined in the target population are represented in the sample in proportion to their presence in the target population. In other words, each basic feature of the individuals in the target population must also be in the sample in the same profile (Fraenkel & Wallen, 1990; Fink, 1995), which increases the impartiality of measurements related to stratified variables (Fowler, 1993) and allows comparisons between sub-groups (Gay, 1987) (as cited in Alkın, 2012). In terms of being suitable for and serving the purposes of the research, 'university' and 'department' variables were accepted as criteria in the formation of the strata. The number of students to be sampled from each of the '4 universities' and '7 departments' strata was calculated. However, these numbers were altered slightly because of

potential differences in the numbers of students attending the lesson on the day when the questionnaires were administered and also agreeing to take part in the study voluntarily. In other words, in case there might not be sufficient students who agreed to participate in the study in any department, the questionnaires were administered to more students in all departments and thus the number of participants was balanced.

The study's subjects were all chosen and all of them participated in it voluntarily. Also, the subjects were only selected from amongst first-year students. The first reason for this kind of selection was that conducting research with students from all years and administering scales and open-ended questions to them would have been time-consuming, inconvenient and uneconomical for the researcher. The other reason was that, in the light of Aybirdi (2016), first-year learners were presumed to be likely to feel more anxiety than students in their second, third or last year. This is because fresher students are not acquainted with the new learning environment and also because they are not experienced in developing efficient learning strategies (Aybirdi, 2016).

Table 7 shows the distribution of the target population and sample group of students by university and department. It also shows the proportion of EMI in the departments.

Table 7. Target population and sample distribution of student numbers according to universities and departments at 4 Turkish state universities

University	**Department**	**Proportion of EMI**	**Quotas (target population number)**	**Sample Number**
Dokuz Eylül University	Computer Engineering	100 %	90	29
	Electrical and Electronic Engineering	100 %	100	26
	Mechanical Engineering (daytime)	30 %	105	61
	Mechanical Engineering (evening)	30 %	105	42

	Metallurgical and Materials Engineering	30 %	70	27
	Textile Engineering	30 %	60	22
	Total		530	207
Karadeniz Technical University	Civil Engineering	100 %	40	20
	Computer Engineering	30 %	80	31
	Electrical and Electronic Engineering	30 %	100	30
	Mining Engineering	30 %	40	5
	Mechanical Engineering (daytime)	30 %	120	40
	Total		380	126
Atatürk University	Electrical and Electronic Engineering (daytime)	30 %	60	50
	Electrical and Electronic Engineering (evening)	30 %	60	30
	Total		120	80
Fırat University	Mechanical Engineering (daytime)	30 %	85	32
	Mechanical Engineering (evening)	30 %	85	37
	Total		170	69
	Final Total		1200	482

As Table 7 shows, the participants were selected from the different engineering departments of four state universities in three different regions so that the findings could be generalized more to the population: Dokuz Eylül University in Izmir in the Aegean Region, Karadeniz Technical University in Trabzon in the Black Sea Region, Atatürk University in Erzurum in the Eastern Anatolia Region, and finally Fırat University in Elazığ in the Eastern Anatolia Region. Only the Computer and Electrical and Electronic Engineering Departments at Dokuz Eylül University and also the Department of Civil Engineering at Karadeniz Technical University give 100% English education. The medium of instruction in the other departments at these

four universities is 30% English. The quota numbers of the departments and the sample numbers are separately presented in the table. The largest number of participants was at Dokuz Eylül University.

3.4. Profiles of the Participants

This section presents the demographic data of the participants, collected through an Individual Background Questionnaire consisting of nine items. These items are gender, age, university, department, type of education, proportion of EMI, English proficiency level, preparatory class study at high school or university and overseas experience. Table 8 shows the descriptive frequencies and percentage distributions of the sample's demographic data.

Table 8. Participants' demographic data

Distribution of Personal Information		**f**	**%**
Gender	Male	389	80.7
	Female	93	19.3
	Total	482	100.0
Age	17-25 years	476	98.8
	26 years or over	6	1.2
University	Atatürk University	80	16.6
	Fırat University	69	14.3
	Karadeniz Technical University	126	26.1
	Dokuz Eylül University	207	42.9
Department	Electrical and Electronic Engineering	136	28.2
	Mechanical Engineering	212	44.0
	Computer Engineering	60	12.4
	Mining Engineering	5	1.0
	Civil Engineering	20	4.1
	Metallurgical and Materials Engineering	27	5.6
	Textile Engineering	22	4.6
Type of Education	Daytime Education	373	77.4
	Evening Education	109	22.6

Proportion of EMI	30 % English	427	88.6
	100 % English	55	11.4
English Proficiency Level	Elementary	28	5.8
	Pre-Intermediate	218	45.2
	Intermediate – Upper	196	40.7
	Advanced	40	8.3
Did you study in preparatory class at high school and university?	Yes	388	80.5
	No	94	19.5
Have you ever been to a country in which English is spoken?	Yes	47	9.8
	No	435	90.2

As Table 8 indicates, first the number of male participants is almost four times the number of females. In other words, nearly four of five students are male. It is assumed that this is because more male students than female prefer to study in engineering departments.

Second, all students bar six are between the ages of 17 and 25. Only around one in a hundred participants is aged 26 or over.

Third, the highest number of participants is at Dokuz Eylül University, representing slightly less than half of the total. The lowest number of participants is at Fırat University. The proportions of the students at the other two universities are very close to each other. This is because there is only one engineering department at Fırat and Atatürk Universities in which the medium of instruction is at least 30% English, whereas there are five at both Karadeniz Technical and Dokuz Eylül Universities.

Fourth, the participants are studying in several different departments of engineering. The most crowded group is the department of mechanical engineering with 212 students, which represents almost half of the sample size. The least crowded group is

the mining engineering department with only 5 participants. Only one student in a hundred is in mining engineering. As Table 7 shows, mining engineering is one of the two departments with the lowest quotas.

Fifth, nearly three-quarters of the participants are receiving daytime education. The remaining quarter is in evening education.

Sixth, most of the students (88.6%) are majoring in an engineering department whose medium of instruction is 30% English. Only around one in ten students taking part in this study is exposed to 100% English. As Table 7 indicates, the medium of instruction is 100% English only in the Computer and Electrical and Electronic Engineering Departments of Dokuz Eylül University and in the Department of Civil Engineering at Karadeniz Technical University.

Seventh, the vast majority of the participants (85.9%) have a pre-intermediate, intermediate, or upper-intermediate level of English proficiency. Only around fourteen students in every one hundred students have an elementary or advanced proficiency level.

Eighth, when the participants were asked whether they had studied in a preparatory class at high school or university, approximately four out of every five participants answered this question as 'Yes'. In this case, only around one in five of the participants had not had a prep class education.

Ninth and last, when the students were asked if they had ever been to a country in which English was spoken, only around one in every ten students answered this question positively, while the rest of them gave a negative answer. So, a large proportion of the sample had not experience abroad.

3.5. Data Collection Instruments

The data were collected via both quantitative and qualitative data collection tools. These were an 'Individual Background Questionnaire'; two scales, the 'Foreign Language Classroom Anxiety Scale' (FLCAS) and the 'Beliefs about Language Learning Inventory' (BALLI); and also eight open-ended questions related to the two scales. Additionally, an 'Informed Consent Form' in respect of participation in the

research was administered to the subjects. The research instruments are presented in detail below.

3.5.1. Individual Background Questionnaire

First, the students were asked to fill in this 'individual background questionnaire' in Turkish, under the title of personal details at the top of the FLCAS (see Appendix A for Turkish and B for English). In this section, there were 9 items comprising university, department, type of education, proportion of EMI, foreign language proficiency level, preparatory class study at high school or university, overseas experience, gender and age. The participants were not asked to write their names and surnames.

3.5.2. The Turkish Version of the FLCAS

The first quantitative data collection tool was the FLCAS (Horwitz et al., 1986). Horwitz et al. (1986) developed this scale in order to investigate a person's reaction to language learning stimuli and to supply researchers with a standardized tool for this purpose (see Appendix B). This was because the researcher wished to remedy the lack of an accepted instrument for measuring the anxiety particular to language learning.

The FLCAS is a 33-item survey and includes 3 sub-dimensions: the first sub-dimension has 12 items connected with individuals' communication apprehension (items 1, 3, 4, 9, 13, 14, 18, 20, 24, 27, 29, 33); the second has eight items related to students' fear of negative evaluation (items 2, 7, 8, 15, 19, 21, 23, 31); and the third has 13 items linked to a general sense of anxiety (items 5, 6, 10, 11, 12, 16, 17, 22, 25, 26, 28, 30, 32). As concerns its structure, the FLCAS is scored via a five point Likert Scale (Horwitz et al., 1986). The points range as follows: strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), and strongly agree (5). Items 2, 5, 8, 11, 14, 18, 22, 28, 32 were ordered from (strongly agree) 5, 4, 3, 2 to 1 (strongly disagree). The others 1, 3, 4, 7, 9, 10, 12, 13, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 29, 30, 31, 33 were ordered from (strongly disagree) 1, 2, 3, 4 to 5 (strongly agree).

The FLCAS has also a meaningful relation between each component and the whole tool. This scale is internally highly consistent (r= 0.93), relatively valid, and notably reliable in retesting after 8 weeks (r= 0.83) (Horwitz et al., 1986). No matter which target languages, i.e. Western or Eastern, were taught, FLCAS has proved to be a dependable instrument (Aida, 1994).

In this study, the Turkish version of the FLCAS (see Appendix A) was used to ensure that the students were able to read and understand the items better. It was assumed that they would thus give more correct answers to the items, which would increase the reliability and validity of the research. This adapted version of the FLCAS was translated into Turkish and introduced into the Turkish culture by Dalkılıç (2001). Subsequently, Çelebi (2009) re-adapted the scale from Dalkılıç's (2001) study and used it in her own study. Çelebi (2009) applied a reliability test to the revised tool. The Cronbach's Alpha value was .90, the mean was 91.48, and Std Dev. was 21.90. Thus, this scale was found to be reliable (Çelebi, 2009).

As a result of the reliability analysis for this study, the cronbach alpha value for the 33-items of FLCAS was .82, indicating that the scale is reliable and thus have a high level of reliability for this study.

3.5.3. The Turkish Version of the BALLI

Students' BALL have an impact on their language knowledge, skill and language learning process. In this respect, Horwitz (1988) developed the BALLI for American students receiving a foreign language education, in an attempt to determine how students approach language learning, what they think about it, and whether they are pleased with the process (Horwitz, 1999) (see Appendix D). The BALLI was also designed to enable judgments to be made about learners' feelings and thoughts in point of multiple topics and disputes concerning learning a language (Horwitz, 1988).

The BALLI includes 34 items under 5 sub-dimensions: 1) the difficulty of language learning (items 3,4,6,14,24,28); 2) foreign language aptitude (items 1,2,10,15, 22,29,32,33,34); 3) the nature of language learning (items 5,8,11,16,20,25,26,28); 4) learning and communication strategies (items 7,9,12,13,17,18,19,21); and 5)

motivation and expectations (items 23,27,30,31) (Horwitz, 1988; Altan, 2006). These items were all found to be related to each other (Tercanlıoglu, 2005). BALLI items, except for 4 and 14, are scored via a 5-point Likert type scale: strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), and strongly agree (5). The items, except for 4 and 14, are ordered from (strongly agree) 5,4,3,2 to 1 (strongly disagree). However, item 4, which asks for students' opinions about English difficulty level, and item 14, which asks how much time students need for learning a language, aim to determine students' BALL in a separate way and thus learners' answers to these two items are dealt independently (Wang, 2005).

The BALLI was also conducted in Turkish to ensure that the participants had no difficulty in filling in the survey. The adapted version of the BALLI was translated into Turkish and introduced into Turkish culture, with small changes relating to Turkish people's nationality and language, by Başaran and Cabaroğlu (2014) (see Appendix C). The Cronbach's Alpha value of the pre-test results was .59 and the value of the post-test results was .71. This scale showed a reasonable reliability level (Başaran & Cabaroğlu, 2014).

As a result of the reliability analysis for this study, the cronbach alpha value for the 34-items of BALLI was .73, indicating that the scale is reliable and thus have a medium level of reliability for this study.

3.5.4. The Qualitative Data Collection Instruments

The qualitative data collection tools were also used to investigate this important issue in depth, and in case the students might have something peculiar to themselves to add to the scales. The three open-ended questions' in the FLCAS (see Appendix A for Turkish and B for English) and the five in the BALLI (See Appendix C for Turkish and D for English) were addressed in written form under each scale to the participants in Turkish to enable them to express themselves well. These eight open-ended questions were analyzed separately.

3.5.5. Informed Consent Form

In conclusion, the Turkish 'Informed Consent Form' was presented to the participants to get their consent to participate in the research (See Appendix E for Turkish and F

for English). It was also in Turkish so that each participant could understand it more easily and better. This form showed that the subjects agreed in a voluntary and conscious way to take part in the study, without any compulsion. All of the participants filled in this form by writing their names, surnames, the date of the day on which they completed it, and finally by signing it.

3.6. Data Collection Procedure

The data collection procedure for the study involved four stages lasting nearly six months. In the first stage, survey utilization permits were received for both the original and Turkish versions of the FLCAS and the BALLI (See Appendix G for the permission of HORWITZ, the owner of the surveys; H for DALKILIÇ and I for ÇELEBI, for the Turkish version of the FLCAS; J for BAŞARAN and K for CABAROGLU for the Turkish version of the BALLI).

Secondly, in order to be able to administer the scales to the prospective participants, permissions were obtained from the Deanships of the Engineering Faculties of the four state universities by the Graduate School of Social Sciences of Kafkas University (See Appendix L for the permission of Dokuz Eylül University, M for the permission of Karadeniz Technical University, N for the permission of Atatürk University, and finally O for the permission of Fırat University).

The third stage was to administer the scales to the engineering students. In late February and in March, in the second term of the 2016-2017 academic year, the research tools (see 3.5. Data Collection Instruments) were administered to the participants (see 3.3. Target Population and Study Population). Data were collected within the framework of the ethics rules. Before the surveys were implemented, the researcher informed the participants about the study's aim, importance and output as well as about the process. All of the subjects agreed in a voluntary and conscious way to take part in the study (See 3.5.5. Informed Consent Form). This process lasted nearly a month and a half.

Finally, the conducted surveys were numbered, and thus potential confusion was prevented. Next, the researcher entered the data into the SPSS (Statistical Package

for the Social Sciences) software and analyzed them in detail (See 3.7. Data Analysis).

3.7. Data Analysis

3.7.1. Quantitative Data Analysis

In order to analyze the quantitative data, SPSS (Statistical Package for the Social Sciences) statistics program was used. First, reliability of the scales was calculated with Cronbach alpha coefficient. Second, descriptive statistical analysis was conducted to examine the mean and standard deviations of the responses, by gender. Third, inferential statistical analysis (independent sample t-tests for the variables of gender, medium of instruction and overseas experience, and one-way ANOVA for the variable of foreign language proficiency level) was conducted to determine whether there were any significant differences between the participants. Finally, correlation analyses were employed to investigate the relationships between the scales and the factors. The results were shown in tables and interpreted in detail.

3.7.2. Qualitative Data Analysis

In the study, eight open-ended questions were administered to the participants to collect the qualitative data. The open-ended questions were analyzed through classification of the recurring main themes in the participants' answers. First, the responses were analyzed one by one and classified. Next, recurring main themes were determined and the responses were categorized under the headings of the themes. The findings were shown in tables and interpreted in detail.

CHAPTER FOUR

4. RESULTS

4.1. Introduction

In this chapter, first the results of the analysis of the quantitative data obtained from the scales are presented. Next, the findings of the qualitative data gathered from the open-ended questions are presented. Then, the analysis of the correlation between the FLCAS and the BALLI is given. Finally, a table summarizing the results of the analysis of both the quantitative and the qualitative data is presented.

4.2. Quantitative Data Analysis

4.2.1. Analysis of the FLCAS Data

4.2.1.1. Descriptive Statistics Results of the FLCAS

Descriptive statistical analysis was performed in relation to the third research question. In this section, the descriptive results for communication apprehension, fear of negative evaluation, and general feeling of anxiety are presented, respectively.

R.Q.3. To what extent do Turkish EFL STEM students suffer from FLA?

4.2.1.1.1. Descriptive Results for Communication Apprehension

Table 9 shows the descriptive statistics results for the communication apprehension of the participants, by gender (male vs. female).

Table 9. Descriptive statistics for the students' communication apprehension (CA) levels, by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
1. I never feel quite sure of myself when I am speaking in my foreign language class.	389	2.85	1.175	93	3.05	1.136	0.20
3. I tremble when I know that I'm going to be called on in language class.	389	2.45	1.202	93	2.65	1.265	0.20
4. It frightens me when I don't understand what the teacher is saying in the foreign language.	389	2.56	1.282	93	2.60	1.226	0.04
9. I start to panic when I have to speak without preparation in language class.	389	2.97	1.212	93	3.14	1.203	0.17
13. It embarrasses me to volunteer answers in my language class.	389	2.40	1.205	93	2.63	1.061	0.23
14. I would not be nervous speaking the foreign language with native speakers.	389	3.98	1.099	93	3.68	1.217	0.30
18. I feel confident when I speak in foreign language class.	389	3.41	1.098	93	3.12	1.072	0.29
20. I can feel my heart pounding when I'm going to be called in language class.	389	2.51	1.196	93	2.75	1.158	0.24
24. I feel very self-conscious about speaking the foreign language in front of other students.	389	2.54	1.202	93	2.75	1.222	0.21
27. I get nervous and confused when I am speaking in my language class.	389	2.51	1.213	93	2.72	1.077	0.21
29. I get nervous when I don't understand every word the language teacher says.	389	2.57	1.166	93	2.57	1.117	0.00
33. I get nervous when the language teacher asks questions which I haven't prepared in advance.	389	2.76	1.104	93	2.92	1.086	0.16

As presented in Table 9, the mean scores for all items are over two points for females and males, and the mean difference between the genders for each item is low, indicating that females and males have similar moderate levels of CA. The scores for item #14 and item #18 are over three points for both genders, indicating that the participants do not experience much more CA while speaking with native speakers or

in the classroom. The scores for females for two more items (item #1 and item #9) are again over three points, indicating that they are not very sure of themselves while speaking and feel panic if they are not prepared to talk. Further, the standard deviations of all items for both genders are similar and over one point, indicating that females and males do not differ much in terms of CA. Again, the mean scores and standard deviations confirm that the CA levels of female and male participants are similar.

4.2.1.1.2. Descriptive Results for Fear of Negative Evaluation

Table 10 shows the descriptive statistics results for the fear of negative evaluation of the participants, by gender (male vs. female).

Table 10. Descriptive statistics for the students' fear of negative evaluation (FNE) levels, by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
2. I don't worry about making mistakes in language class.	389	3.29	1.201	93	3.15	1.160	0.14
7. I keep thinking that the other students are better at languages than I am.	389	2.29	1.174	93	2.53	1.364	0.24
8. I am usually at ease during tests in my language class.	389	3.46	1.223	93	3.45	1.128	0.01
15. I get upset when I don't understand what the teacher is correcting.	389	2.68	1.201	93	2.86	1.089	0.18
19. I am afraid that my language teacher is ready to correct every mistake I make.	389	2.25	1.175	93	2.35	1.148	0.10
21. The more I study for a language test, the more confused I get.	389	2.32	1.220	93	2.41	1.144	0.09
23. I always feel that the other students speak the foreign language better than I do.	389	2.33	1.186	93	2.44	1.211	0.11
31. I am afraid that the other students will laugh at me when I speak the foreign language.	389	2.10	1.186	93	2.23	1.134	0.13

As presented in Table 10, the mean scores for all items are over two points for females and males, and the mean difference between the genders for each item is

low, indicating that females and males have similar moderate levels of FNE. The scores for item #2 and item #8 are over three points for both genders. These items indicate that the participants do not experience much more FNE in the classroom or during exams. Further, the standard deviations of all items for both genders are similar and over one point, indicating that females and males do not differ much in terms of FNE. Again, the mean scores and standard deviations confirm that the FNE levels of female and male participants are similar.

4.2.1.1.3. Descriptive Results for General Feeling of Anxiety

Table 11 shows the descriptive statistics results for the participants' general feeling of anxiety, by gender (male vs. female).

Table 11. Descriptive statistics for the students' general feeling of anxiety (GFA), by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
5. It wouldn't bother me at all to take more foreign language classes.	389	3.36	1.399	93	3.44	1.272	0.08
6. During language class, I find myself thinking about things that have nothing to do with the course.	389	2.81	1.245	93	2.74	1.206	0.07
10. I worry about the consequences of failing my foreign language class.	389	2.79	1.294	93	2.97	1.137	0.18
11. I don't understand why some people get so upset over foreign language classes.	389	3.31	1.249	93	3.39	1.234	0.08
12. In language class, I can get so nervous I forget things I know.	389	2.36	1.139	93	2.51	1.017	0.15
16. Even if I am well prepared for language class, I feel anxious about it.	389	2.40	1.207	93	2.70	1.140	0.30
17. I often feel like not going to my language class.	389	2.58	1.396	93	2.85	1.351	0.27
22. I don't feel pressure to prepare very well for language class.	389	3.48	1.152	93	3.38	1.242	0.10
25. Language class moves so quickly I worry about getting left behind.	389	2.29	1.148	93	2.28	1.067	0.01
26. I feel more tense and nervous in my language class than in my other classes.	389	2.32	1.240	93	2.37	1.130	0.05
28. When I'm on my way to language class, I feel very sure and relaxed.	389	3.28	1.114	93	3.18	1.083	0.10
30. I feel overwhelmed by the number of rules you have to learn to speak a foreign language.	389	2.32	1.163	93	2.43	1.192	0.11
32. I would probably feel comfortable around native speakers of the foreign language.	389	3.46	1.187	93	3.39	1.053	0.07

As presented in Table 11, the mean scores for all items are over two points for females and males, and the mean difference between the genders for each item is low, indicating that females and males have similar moderate levels of GFA. The scores for items #5, #11, #22, #28, and #32 are over three points for both genders. These items indicate that the participants do not experience much more GFA when taking more language classes, in the classroom, when not very well prepared for

classes, while going to language class, or while with native speakers. Further, the standard deviations of all items for both genders are similar and over one point, indicating that females and males do not differ much in terms of GFA. Again, the mean scores and standard deviations confirm that the GFA levels of female and male participants are similar.

4.2.1.2. Inferential Statistical Results

In order to analyze the responses to the fifth, sixth, seventh and eighth research questions, inferential statistical analysis (independent sample t-tests and ANOVA) was conducted.

R.Q.5: Are there any significant differences between male and female Turkish EFL STEM students with respect to BALL and FLA?

Table 12. Independent sample t-test results for the differences between male and female participants' CA, FNE and GFA

	Gender	N	m	Std. Deviation	t	P
Communication Apprehension	Male	389	2.7939	.63480	-1.206	.228*
	Female	93	2.8826	.64599		
Fear of Negative Evaluation	Male	389	2.5913	.55405	-1.347	.179*
	Female	93	2.6774	.55515		
General Feeling of Anxiety	Male	389	2.8272	.42220	-1.386	.166*
	Female	93	2.8933	.37411		

* p > .050

Table 12 shows the results of the independent sample t-test which investigated whether there were any significant differences between male and female participants, in terms of CA, FNE and GFA. It was found that the mean scores were very close for each factor for both genders and, further, that there were no significant differences between male and female participants, in terms of CA, FNE and GFA (p> .050). In

other words, the variable ‘gender’ was not found to make a difference to the students' levels of FLA.

Moreover, not only the inferential but also the descriptive statistics showed that there was no significant difference between the FLA levels of male and female students.

R.Q.6. Are there any significant differences between Turkish EFL STEM students studying in 30% or 100% English-medium departments, with respect to BALL and FLA?

Table 13. Independent sample t-test results for the differences between students' CA, FNE and GFA, by medium of instruction type (e.g. 30% or 100% English-medium instruction)

	Medium of Instruction	N	m	Std. Deviation	t	P
Communication Apprehension	30% English	427	2.8152	.64999	.398	.691*
	100% English	55	2.7788	.53220		
Fear of Negative Evaluation	30% English	427	2.6086	.55555	.080	.937*
	100% English	55	2.6023	.55334		
General Feeling of Anxiety	30% English	427	2.8397	.41826	.039	.969*
	100% English	55	2.8420	.38101		

* p > .050

Table 13 shows the results of the independent sample t-test which examined whether there were any significant differences between the 30% group and the 100% group in terms of CA, FNE and GFA. It was found that the mean scores were very close in each factor for both groups, and further, that there were no significant differences between the 30% and 100% medium of instruction groups in terms of CA, FNE and GA (p> .050). In other words, the variable ‘medium of instruction’ was not found to make a difference to the students' levels of FLA.

R.Q.7. Do Turkish EFL STEM students' BALL and FLA vary in relation to overseas experience?

Table 14. Independent sample t-test results for the differences between students' CA, FNE and GFA, by overseas experience

	Overseas Experience	N	m	Std. Deviation	t	P
Communication Apprehension	YES	47	2.5035	.66982	-3.523	.000*
	NO	435	2.8443	.62545		
Fear of Negative Evaluation	YES	47	2.3644	.58388	-3.198	.001*
	NO	435	2.6342	.54571		
General Feeling of Anxiety	YES	47	2.6399	.39029	-3.529	.000*
	NO	435	2.8615	.41090		

* $p < .050$

Table 14 shows the results of the independent sample t-test which analyzed whether there were any significant differences between participants with or without overseas experience in terms of CA, FNE and GFA. It was found that the mean scores were not very close in each factor for both groups, and further, that there were significant differences between participants with overseas experience and those without such experience, in terms of CA, FNE and GA ($p < .050$). In other words, the variable 'overseas experience' was found to make a difference to the students' levels of FLA.

R.Q.8. Do Turkish EFL STEM students' BALL and FLA vary in relation to their English proficiency levels?

Table 15. ANOVA results for the differences between the students' CA, FNE and GFA, by foreign language proficiency levels (e.g. elementary, pre-intermediate, intermediate-upper, and advanced proficiency levels)

	Foreign Language Proficiency Level	N	F	P	Test of Homogeneity of Variances
Communication Apprehension	Elementary	28	25.663	.000*	.846
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			
Fear of Negative Evaluation	Elementary	28	6.102	.000*	.172
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			
General Feeling of Anxiety	Elementary	28	8.432	.000*	.198
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			

* $p < .050$

Table 15 shows the results of the ANOVA which examined whether there were any significant differences between participants with different English proficiency levels, in terms of CA, FNE and GFA. It was found that there were significant differences between students with different proficiency levels, in terms of CA, FNE and GA ($p< .050$). In other words, the variable 'foreign language proficiency level' was found to make a difference to students' levels of FLA.

Next, post hoc tests were conducted to determine at which level(s) of proficiency the differences lay. The Levene Test statistics revealed that the variances were homogeneous ($p> .050$), and thus the differences were interpreted with regard to the results of the Scheffe Analysis, indicating that all foreign language proficiency levels had an impact on the differences.

4.2.2. Data Analysis of BALLI

4.2.2.1. Descriptive Statistics Results of the BALLI

Descriptive statistical analysis was performed to answer the first minor research question. The descriptive data obtained from the BALLI are presented in five sub-sections, respectively: the difficulty of language learning, foreign language aptitude, the nature of language learning, learning and communication strategies, and motivation and expectations.

Minor R.Q.1. What are the BALL that Turkish EFL STEM students hold?

4.2.2.1.1. Descriptive Results for the Difficulty of Language Learning

Table 16 shows the descriptive statistics results for the participants' beliefs about the difficulty of language learning, by gender (male vs. female).

Table 16. Descriptive statistics for the students' perceptions of the difficulty of language learning (DLL), by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
3. Some languages are easier to learn than others.	389	4.10	.870	93	3.95	.852	0.15
4. The language I am trying to learn is: 1) a very difficult language, 2) a difficult language, 3) a language of medium difficulty, 4) an easy language, 5) a very easy language	389	3.16	.839	93	3.15	.706	0.01
6. People from my country are good at learning foreign languages.	389	3.95	1.045	93	4.01	1.016	0.06
14. If someone spent one hour a day learning a language, how long would it take them to become fluent? 1) less than a year, 2) 1-2 years, 3) 3-5 years, 4) 5-10 years, 5) you can't learn a language in 1 hour a day.	389	2.38	1.146	93	2.48	1.203	0.10
24. It is easier to speak than understand a foreign language.	389	2.79	1.193	93	2.89	1.078	0.10
28. It is easier to read and write this language than to speak and understand it.	389	3.37	1.248	93	3.56	1.088	0.19

As presented in Table 16, the mean scores for all items are over two points for females and males, and the mean difference between the genders for each item is low, indicating that females and males have similar moderate beliefs about the DLL. The scores for item #3 and item #6 are around four points for both genders. These items indicate that it is easier to learn some languages and that Turks are good at foreign language learning. The scores for item #4 are over three points, indicating a belief that English is a language of medium difficulty. The scores for item #14 are over two points, indicating a belief that it would take them nearly two and a half years to become fluent, by spending one hour a day learning English. Further, the standard deviations of all items for both genders are similar and around one point, indicating that females and males do not differ much in terms of DLL. Again, the mean scores and standard deviations confirm that the female and male participants' perceptions of DLL are similar.

4.2.2.1.2. Descriptive Results for Foreign Language Aptitude

Table 17 shows the descriptive statistics results for the participants' beliefs about foreign language aptitude, by gender (male vs. female).

Table 17. Descriptive statistics for the students' beliefs about foreign language aptitude, by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
1. It is easier for children to learn a foreign language.	389	4.39	.838	93	4.49	.717	0.10
2. Some people are born with a special ability which helps them learn a foreign language.	389	3.58	1.132	93	3.31	1.198	0.27
10. It is easier for someone who already speaks a foreign language to learn another one.	389	3.71	1.072	93	3.74	1.072	0.03
15. I have foreign language aptitude.	389	3.34	1.074	93	3.38	1.083	0.04
22. Women are better than men at learning foreign languages.	389	2.34	1.132	93	3.02	1.170	0.68
29. People who are good at math and science are not good at learning foreign language.	389	2.28	1.102	93	2.14	1.099	0.14
32. People who speak more than one language well are very intelligent.	389	2.95	1.145	93	3.00	1.216	0.05
33. Turks are good at learning foreign languages.	389	2.62	.982	93	2.53	1.049	0.09
34. Everyone can learn to speak a foreign language.	389	4.10	.973	93	4.11	.961	0.01

As presented in Table 17, the mean scores for all items are over two points for females and males, and the mean difference between the genders for each item, except for #22, is low, indicating that females and males have similar beliefs about foreign language aptitude. The scores for item #1 and item #34 are over four points for both genders. These items indicate that children can learn a foreign language more easily and that everyone can speak a foreign language. The scores for item #2, #10 and #15 are over three points for both males and females, which indicates a belief that some individuals have an inborn language ability, that anybody that

speaks a foreign language can learn another one more easily, and that the respondents believe that they have a moderate level of foreign language aptitude. The scores for item #22 are over two points for both groups, but the mean difference between the genders for this item is higher than for the others. This item indicates that whereas the males disagree that women are better than men at foreign language learning, the females are indecisive in this matter. Further, the standard deviations of all items for both genders are similar and around one point, indicating a belief that females and males do not differ much in terms of foreign language aptitude. Again, the mean scores and standard deviations confirm that the female and male participants' perceptions of foreign language aptitude are similar.

4.2.2.1.3. Descriptive Results for the Nature of Language Learning

Table 18 shows the descriptive statistics results for the participants' beliefs about the nature of language learning, by gender (male vs. female).

Table 18. Descriptive statistics for the students' beliefs about the nature of language learning (NLL), by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
5. I believe that I will learn to speak this language very well.	389	2.26	1.139	93	2.63	1.159	0.37
8. It is necessary to know the foreign culture in order to speak the foreign language.	389	3.23	1.130	93	3.14	1.069	0.09
11. It is better to learn a foreign language in the foreign country.	389	4.40	.887	93	4.39	.834	0.01
16. Learning a foreign language is mostly a matter of learning a lot of new vocabulary words.	389	3.96	.877	93	4.03	.814	0.07
20. Learning a foreign language is mostly a matter of learning a lot of grammar rules.	389	2.84	1.159	93	3.11	1.108	0.27
25. Learning a foreign language is different from learning other school subjects.	389	3.70	1.023	93	3.91	.928	0.21
26. Learning a foreign language is mostly a matter of translating from English.	389	3.11	1.052	93	3.30	1.030	0.19
28. It is easier to read and write this language than to speak and understand it.	389	3.37	1.248	93	3.56	1.088	0.19

As presented in Table 18, the mean scores for all items are over two points for females and males, and the mean difference between the genders for each item is low, indicating that females and males have similar moderate beliefs about NLL. The scores for item #11 are over four points for both genders, indicating a belief that a foreign language can be learnt better in the foreign country. The scores for item #16 are around four points for both genders. This item indicates a belief that foreign language learning is mostly related to learning a number of lexical items. Further, the standard deviations of all items for both genders are similar and around one point, indicating that females and males do not differ much in terms of NLL. Again, the mean scores and standard deviations confirm that the female and male participants' perceptions of NLL are similar.

4.2.2.1.4. Descriptive Results for Learning and Communication Strategies

Table 19 shows the descriptive statistics results for the participants' beliefs about learning and communication strategies, by gender (male vs. female).

Table 19. Descriptive statistics for the students' beliefs about learning and communication strategies (LCS) by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
7. It is important to speak a foreign language with an excellent accent.	389	3.38	1.191	93	3.30	1.140	0.08
9. You shouldn't say anything in the foreign language until you can say it correctly.	389	1.84	1.071	93	1.94	.882	0.10
12. If I heard someone speaking the language I am trying to learn, I would go up to them so that I could practice speaking the language.	389	3.40	1.098	93	3.43	1.087	0.03
13. It's OK to guess if you don't know a word in the foreign language.	389	3.40	1.103	93	3.34	1.068	0.06
17. It is important to repeat and practice a lot.	389	4.33	.738	93	4.37	.791	0.06
18. I feel self-conscious speaking the foreign language in front of other people.	389	2.41	1.131	93	2.97	1.127	0.56
19. If you are allowed to make mistakes in the beginning, it will be hard to get rid of them later on.	389	3.18	1.258	93	2.77	1.261	0.41
21. It is important to practice in the language laboratory.	389	3.65	1.008	93	3.80	.939	0.15

As presented in Table 19, the mean scores for all items, except for #9, are over two points for females and males, and the mean difference between the genders for each item is low, indicating that females and males have similar moderate beliefs about LCS. The scores for item #17 are over four points for both male and females, indicating a belief that repeating and practicing a lot is important for language learning. The scores for item #9 are below two points for both genders. This item indicates that individuals may say something in the foreign language, even if they cannot say it correctly. The scores for item #19 are over three points for females, which indicates that learners will not deal with mistakes easily if the teacher allows

them to make mistakes in the beginning. Further, the standard deviations of all items for both genders are similar and around one point, indicating that females and males do not differ much in terms of LCS. Again, the mean scores and standard deviations confirm that the female and male participants' perceptions of LCS are similar.

4.2.2.1.5. Descriptive Results for Motivation and Expectations

Table 20 shows the descriptive statistics results for the participants' opinions about motivation and expectations, by gender (male vs. female).

Table 20. Descriptive statistics for the students' ideas about motivation and expectations (ME), by gender

	Male			Female			
Items	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Mean Difference
23. If I get to speak this language very well, I will have many opportunities to use it.	389	4.12	.871	93	4.29	.802	0.17
27. If I learn to speak this language very well, it will help me get a good job.	389	4.32	.854	93	4.56	.773	0.24
30. Turks think that it is important to speak a foreign language.	389	3.47	1.165	93	3.54	1.221	0.07
31. I would like to learn this language so that I can get to know its speakers better.	389	3.35	1.173	93	3.52	1.109	0.17

As presented in Table 20, the mean scores for all items are over three points for females and males, and the mean difference between the genders for each item is low, indicating that females and males have similar moderate beliefs ME. The scores for item #23 and item #27 are over four points for both male and females, indicating a belief that if they speak English very well, they may be able to use it in different situations and find a good job. Further, the standard deviations about of all items for both genders are similar and around one point, indicating that females and males do not differ much in terms of ME. Again, the mean scores and standard deviations confirm that the female and male participants' perceptions of ME are similar.

4.2.2.2. Inferential Statistical Results

In order to analyze the responses to the fifth, sixth, seventh and eighth research questions, inferential statistical analysis (e.g. independent sample t-tests and ANOVA statistics) was conducted.

R.Q.5: Are there any significant differences between male and female Turkish EFL STEM students with respect to BALL and FLA?

Table 21. Independent sample t-test results for the differences between male and female participants' notions of DLL, foreign language aptitude, NLL, LCS, and ME

	Gender	N	m	Std. Deviation	t	P
The Difficulty of Language Learning	Male	389	3.2918	.43349	-.976	.330
	Female	93	3.3405	.42910		
Foreign Language Aptitude	Male	389	3.2559	.36688	-1.057	.291
	Female	93	3.3023	.42951		
The Nature of Language Learning	Male	389	3.3586	.47962	-2.710	.007*
	Female	93	3.5094	.49255		
Learning and Communication Strategies	Male	389	3.2008	.44289	-.739	.461
	Female	93	3.2392	.48154		
Motivations and Expectations	Male	389	3.8149	.62908	-2.245	.025*
	Female	93	3.9758	.58522		

* $p < .050$

Table 21 shows the results of the independent sample t-test which examined whether there were any significant differences between male and female participants in terms of DLL, foreign language aptitude, NLL, LCS and ME. It was found that the mean scores were very close for DLL, foreign language aptitude and LCS for both genders and further, that there were no significant differences between male and female participants in terms of DLL, foreign language aptitude and LCS ($p > .050$). However, significant differences were found between the genders with regard to NLL and ME ($p < .050$). In other words, the variable ‘gender’ was found to make a

difference to the students' perceptions of NLL and ME, but not of DLL, foreign language aptitude or LCS.

On the contrary, the descriptive statistics results revealed that there was not a significant difference between male and female students in terms of each factor.

R.Q.6. Are there any significant differences between Turkish EFL STEM students studying in 30% or 100% English-medium departments with respect to BALL and FLA?

Table 22. Independent sample t-test results for the differences between students' beliefs about DLL, foreign language aptitude, NLL, LCS and ME, by medium of instruction type (e.g. 30% or 100% English-medium instruction)

	Medium of Instruction	N	m	Std. Deviation	t	P
The Difficulty of Language Learning	30% English	427	3.3044	.42677	.463	.644*
	100% English	55	3.2758	.47922		
Foreign Language Aptitude	30% English	427	3.2626	.38380	-.372	.710*
	100% English	55	3.2828	.34929		
The Nature of Language Learning	30% English	427	3.3899	.48135	.280	.780*
	100% English	55	3.3705	.51928		
Learning and Communication Strategies	30% English	427	3.2084	.45129	.025	.980*
	100% English	55	3.2068	.44697		
Motivations and Expectations	30% English	427	3.8548	.62329	.868	.386*
	100% English	55	3.7773	.62671		

* p > .050

Table 22 shows the results of the independent sample t-test which examined whether there were any significant differences between the 30% group and the 100% group in terms of DLL, foreign language aptitude, NLL, LCS and ME. The mean scores were found to be very close for each factor for both groups, and further, there were no

significant differences between the 30% and 100% medium of instruction groups in terms of DLL, foreign language aptitude, NLL, LCS or ME (p> .050). In other words, the variable 'medium of instruction' was not found to make a difference to the students' BALL.

R.Q.7. Do Turkish EFL STEM students' BALL and FLA vary in relation to overseas experience?

Table 23. Independent sample t-test results for the differences between students' beliefs about DLL, foreign language aptitude, NLL, LCS and ME, by overseas experience

	Overseas Experience	N	m	Std. Deviation	t	P
The Difficulty of Language Learning	YES	47	3.3156	.55193	.240	.810
	NO	435	3.2996	.41848		
Foreign Language Aptitude	YES	47	3.4444	.40660	3.451	.001*
	NO	435	3.2455	.37205		
The Nature of Language Learning	YES	47	3.2633	.53367	-1.855	.064*
	NO	435	3.4011	.47851		
Learning and Communication Strategies	YES	47	3.1596	.44210	-.780	.436
	NO	435	3.2135	.45141		
Motivations and Expectations	YES	47	3.9947	.64583	1.725	.085*
	NO	435	3.8299	.61969		

* p < .050

Table 23 shows the results of the independent sample t-test which analyzed whether there were any significant differences between participants with or without overseas experience in terms of DLL, foreign language aptitude, NLL, LCS and ME. It was found that the mean scores were very close in DLL, NLL, LCS and ME for both genders, and further, that there were no significant differences between the participants with or without overseas experience in terms of DLL, NLL, LCS and ME (p> .050). However, a significant difference was found between the participants with regard to foreign language aptitude (p< .050). In other words, the variable

‘overseas experience’ was found to make a difference to the students' perceptions of foreign language aptitude, but not of DLL, NLL, LCS or ME.

R.Q.8. Do Turkish EFL STEM students' BALL and FLA vary in relation to their English proficiency levels?

Table 24. ANOVA results for the differences between the students' beliefs about DLL, foreign language aptitude, NLL, LCS and ME, by foreign language proficiency level (elementary, pre-intermediate, intermediate-upper and advanced proficiency levels)

	Foreign Language Proficiency Level	N	F	P	Test of Homogeneity of Variances
The Difficulty of Language Learning	Elementary	28	.818	.485	.166
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			
Foreign Language Aptitude	Elementary	28	1.180	.317	.096
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			
The Nature of Language Learning	Elementary	28	3.101	.026*	.213
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			
Learning and Communication Strategies	Elementary	28	.951	.416	.649
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			
Motivations and Expectations	Elementary	28	1.421	.236	.453
	Pre-Intermediate	218			
	Intermediate- Upper	196			
	Advanced	40			

* $p < .050$

Table 24 shows the results of the ANOVA which examined whether there were any significant differences between participants with different English proficiency levels in terms of DLL, foreign language aptitude, NLL, LCS and ME. It was found that there was a significant difference between students of different proficiency levels in terms of NLL ($p < .050$). Next, post hoc tests were conducted to determine at which proficiency level(s) the difference lay. The results of the Levene Test revealed that the variances were homogeneous ($p > .050$), and thus the differences were interpreted with regard to the results of Scheffe Analysis, which indicated that no foreign language proficiency level had a direct impact on the differences.

On the other hand, no significant differences were found between the participants in terms of DLL, foreign language aptitude, LCS or ME ($p > .050$). In other words, the variable 'foreign language proficiency level' was found to make a difference to the students' beliefs about NLL, but not about DLL, foreign language aptitude, LCS or ME.

4.2.3. Correlation Analyses

In order to determine the impact of one factor upon another, first the correlation between these factors, in other words, the existence and direction of any relationship, needs to be determined. In cases where the sample is one hundred and over, for the rates obtained as a result of the correlation analysis, the existence of a strong relationship lies at $r > .700$, a moderate relationship at $.300 < r < .700$ and a weak relationship at $.000 < r < .300$ (Kalaycı, 2010). With the significance level at 5%, rates lower than .050 indicate the existence of a relationship.

Correlation analyses were conducted to answer the first major research question:

Major R.Q.1. Is there a correlation between Turkish EFL STEM students' BALL and their FLA levels?

4.2.3.1. Correlation Analysis for CA, FNE and GFA

Table 25. Correlation Analysis Results for CA, FNE and GFA

		Communication Apprehension	Fear of Negative Evaluation	General Feeling of Anxiety
Communication Apprehension	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	482		
Fear of Negative Evaluation	Pearson Correlation	.629**	1	
	Sig. (2-tailed)	.000		
	N	482	482	
General Feeling of Anxiety	Pearson Correlation	.663**	.615**	1
	Sig. (2-tailed)	.000	.000	
	N	482	482	482

**. Correlation is significant at the .050 level (2-tailed).

Table 25 presents the results of the correlation analysis for CA, FNE and GFA. A relationship was found to exist between CA and FNE ($p < .050$). In terms of its direction and level, a positive moderate relationship was found ($r = .629$).

Likewise, a relationship was found to exist between GFA and CA, and also between GFA and FNE ($p < .050$). In terms of direction and level, the relationships were found to be positive moderate ($r = .663$ and $r = .615$, respectively).

4.2.3.2. Correlation Analysis for DLL, Foreign Language Aptitude, NLL, LCS and ME

Table 26. Correlation Analysis Results for DLL, Foreign Language Aptitude, NLL, LCS and ME

		The Difficulty of Language Learning	Foreign Language Aptitude	The Nature of Language Learning	Learning and Communication Strategies	Motivations and Expectations
The Difficulty of Language Learning	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	482				
Foreign Language Aptitude	Pearson Correlation	.155**	1			
	Sig. (2-tailed)	.001				
	N	482	482			
The Nature of Language Learning	Pearson Correlation	.283**	.275**	1		
	Sig. (2-tailed)	.000	.000			
	N	482	482	482		
Learning and Communication Strategies	Pearson Correlation	.098**	.217**	.461**	1	
	Sig. (2-tailed)	.032	.000	.000		
	N	482	482	482	482	
Motivations and Expectations	Pearson Correlation	.229**	.202**	.380**	.309**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	482	482	482	482	482

**. Correlation is significant at the .050 level (2-tailed).

Table 26 presents the results of the correlation analysis for DLL, Foreign Language Aptitude, NLL, LCS and ME. A relationship was found to exist between DLL and foreign language aptitude ($p < .050$). In terms of its direction and level, a positive weak relationship was found ($r = .155$).

Likewise, a relationship was found to exist between NLL and DLL, and also between NLL and foreign language aptitude ($p < .050$). In terms of direction and level, the relationships were found to be positive weak ($r = .283$ and $r = .275$, respectively).

Also, relationships were found to exist between LCS and DLL, foreign language aptitude and NLL, respectively (p< .050). In terms of direction and level, a positive weak relationship (r= .098), a positive weak relationship (r= .217) and a positive moderate relationship (r= .461) were reported respectively.

Furthermore, relationships were found to exist between ME and DLL, foreign language aptitude, NLL and LCS, respectively (p< .050). In terms of direction and level, a positive weak relationship (r= .229), a positive weak relationship (r= .202), a positive moderate relationship (r= .380) and a positive moderate relationship (r= .309) were reported respectively.

4.2.3.3. Analysis of Correlation between FLCAS and BALLI

Table 27. Correlation Analysis Results for FLCAS and BALLI

		FLCAS	BALLI
FLCAS	Pearson Correlation	1	.292**
	Sig. (2-tailed)		.000
	N	482	482
BALLI	Pearson Correlation	.292**	1
	Sig. (2-tailed)	.000	
	N	482	482

**. Correlation is significant at the .050 level (2-tailed).

Table 27 presents the results of the analysis of correlation between the FLCAS and the BALLI. A relationship was found to exist between the students' FLA and their BALL (p< .050). In terms of its direction and level, a positive weak relation was found (r= .292).

4.2.3.4. Analysis of Correlation between CA, FNE and GFA and DLL, Foreign Language Aptitude, NLL, LCS and ME

Table 28. Results of the Correlation Analysis between CA, FNE and GFA and DLL, Foreign Language Aptitude, NLL, LCS and ME

		The Difficulty of Language Learning	Foreign Language Aptitude	The Nature of Language Learning	Learning and Communication Strategies	Motivations and Expectations	Communication Apprehension	Fear of Negative Evaluation	General Feeling of Anxiety
The Difficulty of Language Learning	Pearson Correlation	1							
	Sig. (2-tailed)								
	N	482							
Foreign Language Aptitude	Pearson Correlation	.155**	1						
	Sig. (2-tailed)	.001							
	N	482	482						
The Nature of Language Learning	Pearson Correlation	.283**	.275**	1					
	Sig. (2-tailed)	.000	.000						
	N	482	482	482					
Learning and Communication Strategies	Pearson Correlation	.098*	.217**	.461**	1				
	Sig. (2-tailed)	.032	.000	.000					
	N	482	482	482	482				
Motivations and Expectations	Pearson Correlation	.229**	.202**	.380**	.309**	1			
	Sig. (2-tailed)	.000	.000	.000	.000				
	N	482	482	482	482	482			
Communication Apprehension	Pearson Correlation	-.063	.035	.387**	.410**	.026	1		
	Sig. (2-tailed)	.169	.438	.000	.000	.564			
	N	482	482	482	482	482	482		
Fear of Negative Evaluation	Pearson Correlation	-.026	.097*	.272**	.345**	-.010	.629**	1	
	Sig. (2-tailed)	.567	.033	.000	.000	.822	.000		
	N	482	482	482	482	482	482	482	
General Feeling of Anxiety	Pearson Correlation	-.025	.062	.293**	.316**	.042	.663**	.615**	1
	Sig. (2-tailed)	.589	.171	.000	.000	.356	.000	.000	
	N	482	482	482	482	482	482	482	482

**. Correlation is significant at the .050 level (2-tailed).

Table 28 presents the results of the correlation analysis between CA, FNE and GFA and DLL, Foreign Language Aptitude, NLL, LCS and ME**.** First, relationships were found to exist between CA and, respectively, NLL and LCS ($p < .050$). In terms of direction and level, the relationships were found to be positive and moderate ($r = .387$ and $r = .410$, respectively). However, no relationship was found between CA and DLL, foreign language aptitude or ME ($p > .050$).

Second, relationships were found to exist between FNE and, respectively, foreign language aptitude, NLL and LCS ($p < .050$). In terms of direction and level, the relationships were found to be positive weak ($r = .097$), positive weak ($r = .272$) and positive moderate ($r = .345$) respectively. However, no relationship was found between FNE and DLL or ME ($p > .050$).

Third, relationships were found to exist between GFA and, respectively, NLL and LCS ($p < .050$). In terms of direction and level, the relationships were found to be positive weak ($r = .293$) and positive moderate ($r = .316$) respectively. However, no relationship was found between GFA and DLL, foreign language aptitude or ME ($p > .050$).

4.3. Qualitative Data Analysis

Qualitative data analysis was used to investigate the research problem in more depth and also to answer the first, second, third, fourth and fifth research questions.

R.Q.5. Are there any significant differences between male and female Turkish EFL STEM students with respect to BALL and FLA?

4.3.1. Analysis of Three Open-Ended Questions in the FLCAS

R.Q.3. To what extent do Turkish EFL STEM students suffer from FLA?
R.Q.4. What are the Turkish EFL STEM students' perceptions of the major sources of their FLA?

4.3.1.1. Do you feel anxiety in English-medium courses? Why?

The first open-ended question in the FLCAS asked whether the participants felt anxiety in EMI courses and if so, what factors caused their FLA. Of the 482 participants, 382 (79.3%) answered this question. A few more than half of the respondents revealed that they were not anxious about the EMI courses. 98.3% of the students who felt anxious indicated the sources of their FLA. These main causes of FLA were analyzed one by one and classified under the headings of five repeated main themes, referring to the major sources of anxiety: a) fear of not being able to understand the course, b) teaching methods, c) studying in both a difficult and English-medium department, d) fear of making mistakes, e) English as not being their native language and f) no comment.

Table 29 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 29. Students' perceptions of whether they feel anxiety in English-medium courses and the reasons for it: descriptive frequencies and percentage distributions of the responses

1. Do you feel anxiety in English-medium courses? Why?		Males		Females		Total	
		F	%	f	%	F	%
NO		172	44.2	33	35.5	205	42.5
YES	Fear of not being able to understand the course	48	12.3	16	17.2	64	13.3
	Teaching methods	52	13.4	9	9.7	61	12.7
	Studying in both a difficult and English medium department	24	6.2	7	7.5	31	6.4
	Fear of making mistakes	3	0.8	5	5.4	8	1.7
	English not being their native language	5	1.3	0	0.0	5	1.0
	No Comment	7	1.8	1	1.1	8	1.7
	Subtotal	139	35.5	38	40.9	177	36.8
No Answer		78	20.1	22	23.7	100	20.7
Total		389	100.0	93	100.0	482	100.0

a) Fear of not Being Able to Understand the Course

As Table 29 shows, Turkish EFL STEM students suffer most from anxiety arising from a fear of not being able to comprehend the lesson. This kind of fear was the most frequently stated major source of FLA among female participants, whereas it was the second most important source of male FLA. A little less than half of the female respondents who suggested the source of their anxiety were uneasy about this kind of fear, and nearly one-third of such males. As the participants expressed in their responses, this kind of fear refers to failing to grasp the course subject that the teacher presents or misunderstanding it, or not comprehending what the teacher's questions mean, and thus answering them wrongly.

b) Teaching Methods

The teaching methods and a lack of study resulting from it are the second largest cause of FLA. The male students indicated that their anxieties in English medium lessons derived most of all from teachers' teaching methods and a lack of study. According to the female participants, this category was the second most important source of their FLA. In other words, females complained about this category less than males. As the participants pointed out in their answers, this category is related to the fact that they are still not good at English, although they have been learning English at school for many years; that English language teaching makes no sense for them; that English education at school is grammar-oriented rather than communication-oriented; and to not concentrating on productive skills, because it is thought that language learning mostly consists of grammar knowledge and reading comprehension.

c) Studying in Both a Difficult and English Medium Department

This category is the third major cause of Turkish EFL STEM students' FLA. The percentage distributions of male and female participants in this theme are very close to each other. As the students indicated in their answers, this category includes the fear of failing exams and repeating a grade level, and also concern for the future. These fears and anxieties originated from the belief that lessons in engineering departments are in any event difficult and that having to take these lessons in EMI compounds that difficulty.

d) Fear of Making Mistakes

The fear of making mistakes constitutes the fourth largest source of participants' FLA. Female students gave this answer more than males. As stated in the participants' responses, the fear of making mistakes refers to being afraid of making grammatical mistakes or of pronouncing the words wrongly when it is their turn, from being shy about speaking English in front of peers, and from inadequate self-confidence.

e) English not being their Native Language

The fact that English is a foreign language is the fifth major source of FLA. Only five male participants indicated that EFL made them anxious in English medium lessons. None of the female participants gave this answer as the main source of their FLA. As indicated in the students' responses, this source of anxiety includes the issue that students have to use a foreign language rather than the one they are accustomed to.

f) No Comment

Nearly two out of every one hundred participants suggested that they felt anxious in EMI courses, but did not state the reason why.

R.Q.4. What are the Turkish EFL STEM students' perceptions of the major sources of their FLA?

4.3.1.2. What contributes most to your anxiety about English?

The second open-ended question investigated what contributed most to students' anxiety about English. Of the 482 participants, 320 (66.4%) answered this question. Nearly one-third of the participants made no response. Approximately one out of six participants suggested that they did not feel anxious about English. Approximately half of the participants stated that they felt anxious about English and gave the reason why. These responses were examined and classified under the headings of repeated main themes referring to factors causing anxiety about English: a) poor English proficiency level, b) personal factors, c) teaching methods, d) language structure (challenges) and e) nothing.

Table 30 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 30. Students' perceptions of the major source of their FLA: descriptive frequencies and percentage distributions of the responses

2. What contributes most to your anxiety about English?	Males		Females		Total	
	f	%	f	%	f	%
Poor English Proficiency Level	122	31.4	29	31.2	151	31.3
Personal Factors	36	9.3	15	16.1	51	10.6
Teaching Methods	19	4.9	4	4.3	23	4.8
Language Structure (Challenges)	9	2.3	2	2.2	11	2.3
Nothing	68	17.5	16	17.2	84	17.4
No Answer	135	34.7	27	29.0	162	33.6
Total	389	100.0	93	100.0	482	100.0

a) Poor English Proficiency Level

A poor English proficiency level emerged as the foremost major source of FLA, and was put forward by nearly one-third of the participants. Male and female students responded to this question at almost the same rate, and in both gender groups this was the principal major cause of FLA. In the responses, the participants revealed that they are not still at the desired level of English, although they have been learning the language for many years; that they have deficiencies in vocabulary and grammar knowledge; and also that they have difficulties in speaking, grasping utterances and expressing themselves.

b) Personal Factors

Individual factors were the second major source of FLA and, in this respect, both the male and female students agreed. Almost one out of every ten participants gave this source. As the participants stated in their answers, individual factors refer to students' negative attitudes towards English, lack of self-confidence, academic incompetence, shyness, and lack of motivation.

c) Teaching Methods

The teaching methods were the third major source of FLA and in this respect, both the male and female students agreed. Around one in twenty participants stated this source. As indicated in the participants' responses, this category is related to the fact that they are still not good at English, although they have been learning English at school for many years; that English language teaching makes no sense for them; that English education at school is grammar-oriented not communication-oriented; and to not concentrating on productive skills, because it is thought that language learning consists mostly of grammar knowledge and reading comprehension; all of which causes students to feel anxiety about English.

d) Language Structure (Challenges)

Language structure was the fourth major source of FLA. Only around two in every one hundred participants regarded language structure as the principal source of FLA. The percentages of the male and female students' responses were almost the same. As reflected in the participants' answers, this source of anxiety refers to the structure and features of English being different from those of Turkish.

e) Nothing

Approximately one in six participants suggested that they did not feel anxious about English. Male and female students stated that they did not feel anxiety about English at almost the same rate.

R.Q.3. To what extent do Turkish EFL STEM students suffer from FLA?

4.3.1.3. How do you feel in English-medium courses?

The third open-ended question investigated participants' moods in English-medium courses. Of the 482 participants, 368 (76.3%) gave a response. Almost one quarter (114 students) did not answer this question. The percentages of the male and female students that did not give an answer to this question were exactly the same. The data obtained from the participants were analyzed and collected under the sub-headings of five commonly repeated moods: a) relaxed / good b) nervous / awful c) same as in

other courses d) more excited / more careful than in other courses e) changing mood. Nearly one-third of the sample revealed that they felt relaxed and good during the EMI courses.

Table 31 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 31. Students' moods in English-medium courses: descriptive frequencies and percentage distributions of the responses

3. How do you feel in English-medium courses?	Males		Females		Total	
	f	%	f	%	f	%
Relaxed / Good	143	36.8	23	24.7	166	34.4
Nervous / Awful	74	19.0	27	29.0	101	21.0
Same as in other courses	41	10.5	10	10.8	51	10.6
More excited / More careful than in other courses	22	5.7	5	5.4	27	5.6
Changing mood	17	4.4	6	6.5	23	4.8
No Answer	92	23.7	22	23.7	114	23.7
Total	389	100.0	93	100.0	482	100.0

a) Relaxed / Good

A relaxed or good mood was revealed to be the most common feeling of the participants in EMI courses. Nearly one-third of the sample revealed that they felt relaxed and good during the EMI courses. Whereas this mood was the most common feeling reported by males, it was the second most common feeling among females. Male students gave this response nearly one and a half times more than females. As the participants stated in their responses, this mood refers to relaxed, happy, good, perfect and quite pleasant feelings.

b) Nervous / Awful

A nervous or awful mood was found to be the second-most common feeling in EMI courses. Nearly one-fifth of the participants felt nervous or awful in EMI courses. This mood was reported by female students as the most common feeling. However, it was the second most for males. So, female students felt one and a half times more nervous or awful in EMI courses than males. As the participants indicated in their answers, this mood is related to tense, uneasy, unhappy, anxious, embarrassed and bored feelings.

c) Same as in Other Courses

This mood was revealed to be the third most common feeling in EMI courses. Nearly one out of every ten participants felt the same in EMI courses as in others. The male participants made nearly as many responses as the females. Both gender groups were consistent in reporting this mood as the third most common feeling.

d) More excited / More careful than in other courses

This mood was suggested to be the fourth most common feeling in EMI courses. Almost one out of twenty participants reported this mood. The percentages of the male and female responses were very close to each other.

e) Changing Mood

A changing mood was stated to be the fifth most common feeling. Only around one in twenty participants stated this mood. In the responses, the participants stated that they felt relaxed and good when they comprehended the lesson, but they felt nervous and bad when they failed to grasp the course.

4.3.2. Analysis of Five Open-Ended Questions in the BALLI

Minor R.Q.1. What are the BALL that Turkish EFL STEM students hold?

4.3.2.1. What are the difficulties in learning English?

The first open-ended question investigated students' beliefs about the difficulties in learning English. Of the 482 participants, 436 (90.5%) answered this question. Only

around one-tenth of the participants made no response. Nearly a quarter of the participants reported that there were no difficulties in learning English. 67.5% of the participants stated the difficulties in learning English. These responses were analyzed and classified under the headings of repeated main themes referring to the difficulties: a) repeating and practicing, b) the teachers' teaching methods, c) language structure, d) communication and pronunciation, e) personal factors and f) no difficulties.

Table 32 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 32. Students' beliefs about the difficulties in learning English: descriptive frequencies and percentage distributions of the responses

1. What are the difficulties in learning English?	**Males**		**Females**		**Total**	
	F	**%**	**f**	**%**	**f**	**%**
Repeating and Practicing	72	18.5	19	20.4	91	18.9
Teachers' Teaching Methods	77	19.8	13	14.0	90	18.7
Language Structure	42	10.8	8	8.6	50	10.4
Communication and Pronunciation	39	10.0	10	9.3	49	10.2
Personal Factors	39	10.0	6	6.5	45	9.3
No Difficulties	106	27.2	5	5.4	111	23
No Answer	14	3.6	32	34.4	46	9.5
Total	389	100.0	93	100.0	482	100.0

a) Repeating and Practicing

Repeating and practicing were reported to be the largest difficulty in learning English. Approximately one-fifth of the participants stated this kind of difficulty. The percentages of male and female students giving this answer were very close to each other. Nevertheless, while females reported repeating and practicing as the largest difficulty in learning English, males gave it as the second largest difficulty. As the participants indicated in their responses, repeating and practicing include not being

exposed to English outside school and not practicing or using English outside the classroom, due to living in a country where English is not spoken.

b) The Teachers' Teaching Methods

This category was suggested to be the second largest difficulty in learning English. The first and second largest difficulties were nearly the same because only one more participant made the response ‘repeating and practicing’. Male students regarded this category as the major difficulty in learning English, while females considered it to be the second major difficulty. Almost one fifth of the participants stated that the difficulty arose from the teachers' teaching methods. As indicated in the participants' responses, this category is related to the belief that they are still not good at English, although they have been learning English at school for many years; that English language teaching makes no sense for them; that English education at school is grammar-oriented not communication-oriented; and to not concentrating on productive skills because it is thought that language learning mostly consists of grammar knowledge and reading comprehension. Besides, the teachers' beliefs about language learning are considered to contribute to the difficulties in learning English.

c) Language Structure

Language structure was regarded as the third major difficulty in learning English. Nearly one-tenth of the participants made this response. Whereas the male participants regarded language structure as the third major difficulty in learning English, the females regarded it as the fourth major difficulty. As reflected in the participants' answers, this category refers to the structure and features of English being different from those of Turkish.

d) Communication and Pronunciation

This theme was found to be the fourth major difficulty in learning English. Nearly one-tenth of the participants gave this answer. The percentages for ‘language structure’ and this category were nearly the same because only one more participant gave the response ‘language structure’. Male and female students made this response at similar rates. Whereas males reported this category as the fourth major difficulty,

the females reported it as the third. As reflected in the participants' responses, this category refers to a lack of lexical items during communication, monitoring oneself while speaking in English, mispronunciation and the fear of making mistakes.

e) Personal Factors

Personal factors were regarded as the fifth major difficulty in learning English. Nearly one-tenth of the participants gave this answer. Both male and female students reported personal factors as the fifth major difficulty. One-tenth of the male participants gave this answer, but the percentage was lower for females. As the participants stated in their answers, individual factors refer to students' negative attitudes towards English, lack of self-confidence, lack of academic competence, shyness and lack of motivation.

f) No Difficulties

Nearly a quarter of the participants reported that there were no difficulties in learning English. The level of male responses that there were no difficulties in learning English was five times higher than that of females.

Minor R.Q.1. What are the BALL that Turkish EFL STEM students hold?

4.3.2.2. Are there any differences between English learning and learning in other fields (mathematics, physics, etc.)? If so, what?

The second open-ended question aimed to investigate students' perceptions of the differences between English learning and learning in other fields. Of the 482 participants, 296 (61.4%) answered this question. Approximately four out of every ten participants made no response. Almost one quarter of the respondents suggested that there were no differences between learning English and learning in other fields. The participants' responses were examined and sorted under the headings of repeated main themes: a) no differences, b) learning strategies, c) learning English is not a lesson, learning a new language, d) verbal and numerical lessons, and e) no comment.

Table 33 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 33. Students' thoughts about the differences between English learning and learning in other fields: descriptive frequencies and percentage distributions of the responses

2. Are there any differences between English learning and learning in other fields (mathematics, physics, etc.)? If so, what?		**Males**		**Females**		**Total**	
		f	**%**	**F**	**%**	**f**	**%**
	No Differences	58	14.9	19	20.4	77	16.0
YES	**Learning Strategies**	94	24.2	26	28.0	120	24.9
	Learning English is not a Lesson, Learning a New Language	33	8.5	8	8.6	41	8.5
	Verbal and Numerical Lessons	37	9.5	3	3.2	40	8.3
	No Comment	11	2.8	7	7.5	18	3.7
	Subtotal	175	45	44	47.3	219	45.4
	No Answer	156	40.1	30	32.3	186	38.6
	Total	389	100.0	93	100.0	482	100.0

a) No Differences

Almost one quarter of the respondents suggested that there were no differences between English and other fields of learning. These students represented nearly one-sixth of the sample.

b) Learning Strategies

Learning strategies were found to be the largest difference between English and other fields of learning. Nearly a quarter of the participants, which is a little over half of those students who thought that there was a difference, gave this answer. Both male and female participants agreed that learning strategies are the largest difference

between learning English and learning in other fields. In the responses, the participants reported that they could learn the topics in mathematics and science lessons by studying at a desk, memorizing the rules or formulas, or by means of experiments in a laboratory. On the contrary, they considered that English could be learnt by practicing.

c) Learning English is not a Lesson, Learning a New Language

This category was the second largest difference between English and other fields of learning. Nearly nine out of every one hundred participants stated this difference. Also the percentages of the male and female students that made this response were almost the same. However, whereas males suggested this category as the third largest difference, females reported it as the second. As reflected in the participants' responses, English is regarded as a wholly new learning domain, whereas the fields such as mathematics, science, etc. are regarded as courses that they are required to learn.

d) Verbal and Numerical Lessons

This category was the third major difference between English and other fields of learning. The number of students making this response was nearly the same as the number of students suggesting the second major difference. Male students reported this category as the second major difference, while females considered it to be the third. In the answers, the participants suggested that courses such as mathematics and science consist of numerical data, rules, and formulas, while English is based on verbal structures.

e) No Comment

Nearly four in every one hundred participants stated that there is a difference between English and other fields of learning, but did not state the difference itself. Female students made no comment at almost two and a half times the rate of males.

R.Q.2. What are the significant factors affecting Turkish EFL STEM students' BALL?

4.3.2.3. What are the three important factors that influence your BALL?

The third open-ended question aimed to examine students' perceptions of the three important factors affecting their BALL. Of the 482 participants, 196 (40.6%) responded to this question. Nearly six out of every ten participants did not answer this question. Whereas approximately half of the female participants answered the question, almost four in ten males answered it. The responses were analyzed and repeated main themes referring to factors affecting BALL were determined: a) no beliefs b) career plan (employment possibility), c) school readiness, d) globalizing, e) level of aspiration, and f) personal ability. Nearly 14% of the respondents suggested that they had no BALL.

Table 34 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 34. Students' opinions about the three important factors that influence their BALL: descriptive frequencies and percentage distributions of the responses

3. What are the three important factors that influence your BALL?		**Males**		**Females**		**Total**	
		f	**%**	**F**	**%**	**f**	**%**
No Beliefs		20	5.1	7	7.5	27	5.6
Factors affecting BALL	**Career Plan (Employment Possibility)**	39	10.0	15	16.1	54	11.2
	School Readiness	38	9.8	5	5.4	43	8.9
	Globalizing	26	6.7	9	9.7	35	7.3
	Level of Aspiration	15	3.9	5	5.4	20	4.1
	Personal Ability	11	2.8	6	6.5	17	3.5
	Subtotal	129	33.2	40	43.1	169	35
No Answer		240	61.7	46	49.5	286	59.3
Total		389	100.0	93	100.0	482	100.0

a) No Beliefs

Nearly five out of every one hundred participants, or nearly 14% of the respondents, suggested that they had no BALL.

b) Career Plan (Employment Possibility)

Career plan was found to be the most significant factor affecting BALL among the others. Nearly 11 out of every one hundred participants regarded their career plan as the most important factor influencing BALL. Female students made this response nearly one and a half times more than males, although both groups reported career plan as the major factor that has an impact on BALL. As revealed in the participants' responses, they considered that knowing English was indispensable for their occupations; that they would find a good job more easily; and that they could have business opportunities abroad due to their knowledge of English.

c) School Readiness

The second most significant factor affecting BALL was reported to be school readiness. Nearly one in ten participants made this response. Male students gave this answer almost two times more than females. As the participants stated in their answers, this category refers to the fact that the higher the students' preparedness level for school is and the more they study, the better they learn the language.

d) Globalizing

Globalizing was the third major factor affecting BALL. Whereas globalizing was the second major factor for female participants, male students indicated it as the third major factor. As reflected in the participants' responses, globalizing includes English as a world language, travelling to different countries, acculturation, and meeting new people from different cultures.

e) Level of Aspiration

Level of aspiration was reported to be the fourth major factor affecting BALL by both male and female participants. As they reported in their answers, this category refers to levels of interest and motivation and also to attitudes towards English.

f) Personal Ability

Personal ability was suggested to be the fifth major factor affecting BALL. Only three out of every one hundred participants stated this factor. Female students made this response at more than twice the rate of males. As stated in the participants' answers, this theme refers to language learning ability and English proficiency level.

Minor R.Q.1. What are the BALL that Turkish EFL STEM students hold?

4.3.2.4. Do you think that everybody can learn a foreign language? Why?

The fourth open-ended question asked about the students' perceptions as to whether everybody can learn a foreign language. Of the 482 participants, 328 (68.1%) answered this question. Nearly one in three students did not respond to this question. The rates of male and female students who answered or did not answer it were close to each other. Nearly one in ten participants said that not everybody is able to learn a foreign language and, in this respect, males and females responded at exactly the same rate. More than half of the participants (57.3%) stated that everybody can learn a foreign language, and nearly two-thirds of them explained the reason. The participants' responses were analyzed and sorted under five sub-headings: a) no, b) no comment, c) eagerness to learn, d) not difficult, and e) studying hard enough.

Table 35 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 35. Students' ideas about whether everybody can learn a foreign language: descriptive frequencies and percentage distributions of the responses

4. Do you think that everybody can learn a foreign language? Why?		Males		Females		Total	
		F	%	F	%	f	%
NO		42	10.8	10	10.8	52	10.8
YES	No Comment	67	17.2	21	22.6	88	18.3
	Eagerness to learn	51	13.1	16	17.2	67	13.9
	Not difficult	57	14.7	6	6.5	63	13.1
	Studying hard enough	45	11.6	13	14.0	58	12.0
	Subtotal	220	56.6	56	60.3	276	57.3
No Answer		127	32.6	27	29.0	154	32.0
Total		389	100.0	93	100.0	482	100.0

a) No

Nearly one in ten participants said that not everybody is able to learn a foreign language and in this respect males and females responded at exactly the same rate. As indicated in the participants' answers, individuals' learning capacities, language learning abilities, and levels of interest are different from each other, and so it is not possible for everybody to learn a foreign language.

b) No Comment

Approximately one in five participants indicated that not everybody can learn a foreign language but stated no reasons. The rate of non-commenting female participants was higher than that of non-commenting males.

c) Eagerness to Learn

Eagerness to learn was reported by participants as the main reason for everybody being able to learn a foreign language. Nearly one in seven participants, which is almost one in four of the students who thought that everybody could learn a foreign language, stated this reason. Whereas female participants regarded the desire to learn

as the main reason for everybody being able to learn, this was reported as the second most important reason by male participants. In the responses, the students reported that individuals can learn most things as long as they want to, but that the most significant factor is the continuous desire to learn.

d) Not Difficult

The belief that foreign language learning is not difficult emerged as the second main reason given by the participants as to why everybody could learn a foreign language. Nearly 13 out of every one hundred participants reported this reason. While this was the main reason reported by male participants, for female students it was in third position. The participants' responses suggested that people who can learn their own native language are also able to learn a foreign language easily, if they have a minimum level of language ability.

e) Studying Hard Enough

This category constitutes the third largest reason for everybody being able to learn a foreign language. Almost one in eight participants stated this reason. Female students suggested studying hard enough as the second main reason for being able to learn, while this was reported as the third main reason by male participants. As the participants indicated in their answers, this category is related to the significant positive correlation between learning and studying. In other words, it was stated that the more a student studies, the more he/she learns.

Minor R.Q.1. What are the BALL that Turkish EFL STEM students hold?

4.3.2.5. What is the most difficult skill to learn in a foreign language?

The last open-ended question aimed to investigate the students' perceptions of the most difficult skill to learn in a foreign language. Of the 482 participants, 304 (63.1%) gave an answer to this question. A little over one third of the students did not respond to this question. The male and female participants' responses were examined one by one and collected under the sub-headings of 4 basic skills (speaking, listening, writing, and reading, in order of difficulty) and also grammar. As Table 8 indicates, the most difficult language skill to learn was revealed to be

speaking. Grammar took second place in order of difficulty. The least difficult skill was stated to be reading.

Table 36 shows the descriptive frequencies and percentage distributions of the sample's responses, classified by gender (male vs. female).

Table 36. Students' perceptions of the most difficult skill to learn in a foreign language: descriptive frequencies and percentage distributions of the responses

5. What is the most difficult skill to learn in a foreign language?	Males		Females		Total	
	f	%	f	%	f	%
Speaking	164	42.2	37	39.8	201	41.7
Grammar	51	13.1	15	16.1	66	13.7
Listening	21	5.4	2	2.2	23	4.8
Writing	10	2.6	3	3.2	13	2.7
Reading	1	0.3	0	0.0	1	0.2
Subtotal	247	63.5	57	61.3	304	63.1
No Answer	142	36.5	36	38.7	178	36.9
Total	389	100.0	93	100.0	482	100.0

a) Speaking

As Table 36 shows, speaking was found to be the most difficult skill to learn in a foreign language. Almost four in ten participants agreed that speaking was the most difficult skill. Around two in three respondents answered this question as speaking. The rate of response was almost the same for male and female participants. As reflected in the participants' answers, students thought that communicating in English accurately and fluently with the correct pronunciation in front of their peers was so difficult because of a fear of negative evaluation and making mistakes, and also because of being shy about speaking English in class.

b) Grammar

Grammar was ranked as the second most difficult language area to learn. Nearly fourteen in a hundred participants regarded grammar as the most difficult language area. The rates of the males' and females' responses were very close to each other. This response was given nearly three times less than speaking as the most difficult skill by the participants.

c) Listening

Listening was revealed to be the second most difficult basic skill to learn. Approximately 5 in a hundred participants regarded listening as the most difficult skill. Male students gave this answer nearly two and a half times more than females. As the participants stated in their responses, the difficulty of listening refers to failing to grasp the teacher's utterances or misunderstanding. Some of the respondents suffered from not understanding foreign music.

d) Writing

Writing was indicated to be the third most difficult basic skill to learn. Nearly three in a hundred participants considered listening to be the most difficult skill. The percentages of male and female responses were very close to each other. As indicated in the participants' answers, students suffered from a fear of not being able to write a composition in English.

e) Reading

Reading was stated to be the easiest skill to learn. Only one male participant regarded reading as the most difficult skill. None of the female students gave this answer. So almost nobody had difficulty in reading comprehension.

4.4. Summary of Quantitative and Qualitative Data Analysis Results

Table 37. Summary of quantitative and qualitative data analysis results

R.Q.	Quantitative Data			Qualitative Data		
	Data Obtained from	**Data Analysis**	**Result**	**Data Obtained from**	**Data Analysis**	**Result**
Major R.Q.1.	FLCAS and BALLI	Correlation Analysis	A relationship was found to exist between the students' FLA and their BALL ($p < .050$). In terms of its direction and level, a positive weak relation was found ($r = .292$).			
Minor R.Q.1.	BALLI	Descriptive	Females and males have similar moderate BALL.	1. Open-ended question of BALLI		Nearly a quarter of the participants reported that there were no difficulties in learning English. 67.5% of the participants stated the difficulties in learning English: a) repeating and practicing, b) the teachers' teaching methods, c) language structure, d) communication and pronunciation and e) personal factors, in order of importance
				2. Open-ended question of BALLI		Almost one quarter of the respondents suggested that there were no differences between learning English and learning in other fields. 45.4% of the participants suggested that there were differences in terms of a) learning strategies, b)

					learning English is not a lesson, learning a new language and c) verbal and numerical lessons.
				4. Open-ended question of BALLI	More than half of the participants (57.3%) stated that everybody can learn a foreign language. Nearly one in ten participants said that not everybody is able to learn a foreign language.
				5. Open-ended question of BALLI	The most difficult language skill to learn was revealed to be speaking. Grammar took second place in order of difficulty. The least difficult skill was stated to be reading.
R.Q.2.				3. Open-ended question of BALLI	Factors affecting BALL were as follows: a) career plan (employment possibility), b) school readiness, c) globalizing, d) level of aspiration and e) personal ability.
R.Q.3.	FLCAS	Descriptive	Females and males have similar moderate level of CA, FNE and GFA. Also the CA, FNE and GFA levels of female and male participants are similar.	1. Open-ended question of FLCAS	A few more than half of the respondents revealed that they were not anxious about the EMI courses. 36.8% of the participants suggested that they felt anxiety in English-medium courses.
				3. Open-ended question of FLCAS	Nearly one-third of the sample revealed that they felt relaxed and good during the EMI courses.

					Nearly one-fifth of the participants felt nervous or awful in EMI courses.
R.Q.4.				1. Open-ended question of FLCAS	The major sources of anxiety were revealed as follows: a) fear of not being able to understand the course, b) teaching methods, c) studying in both a difficult and English-medium department, d) fear of making mistakes, and e) English as not being their native language.
				2. Open-ended question of FLCAS	Factors causing anxiety about English most were revealed as follows: a) poor English proficiency level, b) personal factors, c) teaching methods and d) language structure (challenges).
R.Q.5.	FLCAS	Inferential (independent sample t-test)	The variable "gender" was not found to make a difference to the students' level of FLA.		
		Descriptive	The CA, FNE and GFA levels of female and male participants are similar.		
R.Q.6.	FLCAS	Inferential (Independent sample t-test)	The variable "medium of instruction" was not found to make a difference to the students' level of FLA.		
R.Q.7.	FLCAS	Inferential (Independent sample t-test)	The variable "overseas experience" was found to make a difference to the		

			students' level of FLA.
R.Q.8.	FLCAS	Inferential (ANOVA)	The variable "foreign language proficiency level" was found to make a difference to the students' level of FLA.
R.Q.5.	BALLI	Inferential (Independent sample t-test)	The variable "gender" was found to make a difference to the students' perceptions of NLL and ME, but not of DLL, foreign language aptitude or LCS.
		Descriptive	Female and male participants' beliefs about DLL, foreign language aptitude, NLL, LCS and ME were similar.
R.Q.6.	BALLI	Inferential (Independent sample t-test)	The variable "medium of instruction" was not found to make a difference to the students' BALL.
R.Q.7.	BALLI	Inferential (Independent sample t-test)	The variable "overseas experience" was found to make a difference to the students' perceptions of foreign language aptitude, but not of DLL, NLL, LCS and ME.
R.Q.8.	BALLI	Inferential (ANOVA)	The variable "foreign language proficiency level" was found to make a difference to the students' beliefs about NLL, but not about DLL, foreign language aptitude, LCS and ME.

CHAPTER FIVE

5. DISCUSSION AND CONCLUSION

5.1. Introduction

In this chapter, an overview of the study, discussion of the results and findings, conclusions, the implications of the study, the limitations of the study, and recommendations for future research are presented, respectively.

5.2. Overview of the Study

This study examined the relationship between Turkish EFL STEM students' BALL and their FLA levels, in the context of STEM education. The study followed a mixed method research methodology. In order to identify the research problem more clearly, understand it in depth, and investigate the research object thoroughly, an exploratory research method was applied. The data were collected via both quantitative and qualitative data collection tools.

The quantitative data were obtained from the Turkish versions of the FLCAS (including 33 items, an individual background questionnaire, and three open-ended questions) and the BALLI (including 34 items and five open-ended questions). The 33 items of the FLCAS and the 32 items of the BALLI, except for items 4 and 14, were scored via a 5-point Likert type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach alpha value for the FLCAS was .82, indicating that the scale is reliable and has a high level of reliability for this study. The Cronbach alpha value for the BALLI was .73, indicating that the scale is reliable and has a medium level of reliability for this study.

The qualitative data collection tools were also used to investigate this important issue in depth, and in case the students might have something peculiar to themselves to add to the scales. The data were gathered from the three open-ended questions in the FLCAS and the five in the BALLI.

A total of 482 Turkish EFL STEM freshman students in the various EMI engineering departments at four state universities participated in this study. A total of 389 of the participants were male and 93 of them were female.

The FLCAS measured the participants' levels of CA, FNE and GFA, while the BALLI measured their beliefs about DLL, foreign language aptitude, NLL, LCS and ME. In order to analyze the quantitative data, first descriptive statistical analysis was conducted to examine the mean and standard deviations of the responses, by gender. Next, inferential statistical analysis (independent sample t-tests for the variables of gender, medium of instruction and overseas experience, and one-way ANOVA for the variable of foreign language proficiency level) was conducted to determine whether there were any significant differences between the participants. Finally, correlation analyses were employed to investigate the relationships between the scales and the factors.

The open-ended questions were analyzed through classification of the recurring main themes in the participants' answers. First, the responses were analyzed one by one and classified. Next, recurring main themes were determined and the responses were categorized under the headings of the themes. The findings were shown in tables and interpreted in detail.

5.3. Discussion of the Results and Findings

The main aim of the study was to examine the relationship between Turkish EFL STEM students' BALL and their FLA levels, in the context of STEM education. In this regard, the study aimed to investigate Turkish EFL STEM students' BALL and FLA levels and also to find out whether there were any statistically significant differences between students' BALL and FLA levels in respect of gender, overseas experience, the degree of EMI, and foreign language proficiency level. The study was guided by the following research questions:

Discussion of the major research question: Is there a correlation between Turkish EFL STEM students' BALL and their FLA levels?

The results of the correlation analysis for the FLCAS and the BALLI indicated the existence of a positive weak relationship between students' FLA and their BALL. This result coincides with the previous research (Horwitz, 1995; Horwitz, 1999; Gopang et al.; Young, 1991; Horwitz, 1984; Tran et al., 2013; Wang, 2005; Pramuktiyono & Wardhono, 2016; Zhang & Rahimi, 2014; Truitt, 1995; Er, 2011).

For example, Horwitz (1995) revealed that there is a significant correlation between BALL, FLA and strategies of language learning. Similarly, Horwitz (1999) reported that learners' opinions and beliefs about language learning are likely to be related to FLA, with motivation and learning strategies being other important factors which affect language learning. Gopang et al. (2016) explored the fact that student apprehension and beliefs are influential and complex factors and also how students' BALL contributes to their FLA. Likewise, Young (1991) suggested that students' BALL play a key role in FLA, and also reported that, when learners have unreasonable and unfounded beliefs, anxiety occurs. Moreover, Young (1991) reported that if learners think that they are incapable of learning a foreign or second language, they tend to suffer much more from anxiety than other learners; and that, in terms of classroom procedures, learners who feel that they are obliged to communicate in the foreign or second language in front of their peers consistently exhibit anxious behavior. Furthermore, Horwitz (1984) put emphasis on the relationship between BALL and FLA and stated that some beliefs cause learners to become tense and frustrated in the lesson. Also, core beliefs like being scared of making any mistakes, feeling an obligation to speak accurately, and being afraid of not knowing the meaning of any foreign lexical items make learners feel nervous and worried (as cited in Horwitz et al., 1986, p. 127).

Similarly, Wang (2005) conducted a study to investigate Chinese EFL learners' levels of FLA and BALL and found that students' beliefs about DLL and foreign language aptitude have an impact on their FLA levels; in other words, a higher level of FLA was felt by those participants who thought that English was hard to learn and who believed that they had a poor talent for learning a foreign tongue. Pramuktiyono and Wardhono (2016) examined 49 Indonesian EFL sophomores and reported that the subjects that regarded themselves as having a more natural ability for learning English were observed to be less worried about speaking in the target language, and that the learners that believed that English is an easy language to learn were also found to be less nervous, not only about communicating in the target language but also about taking an English exam. Likewise, Truitt (1995) indicated that FLA might be caused especially by a lack of self-assurance during communication in the target language, and by opinions about how difficult language learning is, as two separate

belief agents. Contrary to these results, Tittle (1997) found no significant associations between FLA and BALL.

Discussion of the first research question: What are the BALL that Turkish EFL STEM students hold?

The descriptive results obtained from the BALLI showed that Turkish EFL STEM freshman students have similar moderate BALL. The results for the difficulty of language learning indicated a belief that English is a language of medium difficulty, and that it would take an individual nearly two and a half years to become fluent, by spending one hour a day learning English. Also, it was indicated that it is easier to learn some languages and that Turks are good at foreign language learning. The data gathered from the first open-ended question revealed that nearly a quarter of the participants claimed that there were no difficulties in learning English. A total of 67.5% of the participants stated that the difficulties in learning English and their sources were as follows, in order of importance: a) repeating and practicing, b) the teachers' teaching methods, c) language structure, d) communication and pronunciation and e) personal factors. Likewise, Büyükyazı (2010) revealed that pointless learning methods, loss of motivation, the length of time it takes to learn a language, perceiving foreign language courses as a part of the curriculum and a lack of self-confidence make the learning process difficult. Suarez et al. (2016) indicated that uniformity in resources, class arrangements and the educator's position are factors that demotivate students and make language learning difficult.

The descriptive results for foreign language aptitude indicated a belief that children can learn a foreign language more easily and that everyone can speak a foreign language. This result is similar to the results of a study by Altan (2006). The qualitative data obtained from the fourth open-ended question revealed that more than half of the participants (57.3%) stated that everybody can learn a foreign language. In addition, the results showed a belief that some individuals have inborn language ability, that anybody that speaks a foreign language can learn another one more easily, and that the participants have a moderate level of foreign language aptitude. Altan's study (2006) reported a similar belief that some people have an innate ability for learning a foreign language. Another result of the descriptive

statistics showed that whereas the males disagree that women are better than men at foreign language learning, the females are indecisive in this matter.

The results for the nature of language learning indicated a belief that a foreign language can be learnt better in the foreign country and that foreign language learning is mostly related to learning a number of lexical items. Also, foreign language learning was reported to be different from learning other subjects. This result is similar to the findings of the qualitative data gathered from the second open-ended question, which showed that most participants suggested that there were differences between learning English and learning in other fields. These differences were found to arise from learning strategies, from the belief that learning English is not a lesson but learning a new language, and from the contexts of verbal and numerical lessons. Also, speaking and listening skills were reported to be more difficult than reading and writing. Likewise, the qualitative data obtained from the fifth open-ended question indicated that the most difficult language skill to learn is speaking. In order of difficulty, grammar, listening, writing and reading were found to follow speaking.

The results for learning and communication strategies revealed a belief that repeating and practicing a lot is important for language learning; that individuals may say something in a foreign language, even if they do not speak correctly; and that learners will not deal with mistakes easily, if teacher allows them to make mistakes in the beginning. In addition, the students were revealed not to feel so shy while speaking English in public.

The results for motivation and expectations indicated the perception that if individuals speak English very well, they may be able to use it in different situations and find a good job. Similarly, Suarez et al. (2016) have reported that students in Colombia think that being able to communicate in English is the best way to find a plum job and have overseas experience. Elsewhere, learners' motivation and expectations have been found to be the most significant areas in the matter of learning EFL (Tercanlıoglu, 2005).

Discussion of the second research question: What are the significant factors affecting Turkish EFL STEM students' BALL?

Recent research has discovered that there are a great number of factors that affect BALL, such as the learners' language knowledge and ability to learn a foreign language, the learning environment and context (Fujiwara, 2011); EFL/ESL contexts and being exposed to more English in a language instructional program (Apairach & Vibulphol, 2015); dissimilar language competences (Wang & Rajprasit, 2015); self-efficacy (Genç et al., 2016); gender, instruction in a second foreign language, and overseas experience (Hismanoglu, 2016); strategy education (Kojour & Heirat,, 2015); additional English courses (Saeb & Zamani, 2013); and students' socio-economic standing (Ariani & Ghafournia, 2016). The qualitative data obtained from the second open-ended question ranked the significant factors affecting Turkish EFL STEM students' BALL in order of importance as career plan (employment possibility), school readiness, globalizing, level of aspiration and personal ability.

Discussion of the third research question: To what extent do Turkish EFL STEM students suffer from FLA?

The quantitative data gathered from the FLCAS revealed that Turkish EFL STEM students have a moderate level of FLA. Out of the three categories of the FLCAS, communication apprehension was reported to be experienced most by the participants. After CA, a general feeling of anxiety and fear of negative evaluation were ranked, respectively, as the types of anxiety that the students suffered from. This result is different from that reported by Aybirdi (2016), who ranked the types of anxiety that students most suffer from as follows: CA, FNE, and GFA. Horwitz (1995) stated that communicating in front of the people in the target language and comprehending it contain most of the FLA; in other words, the most anxiety-provoking in-class exercise is verbal communication. Krashen (1998) reported that when students are forced to speak by language teachers, they experience communication anxiety. Pramuktiyono and Wardhono (2016) stated that the reasons why the students were concerned about learning a language were being invited or asked to speak in an English lesson, having difficulty in understanding English, and communicating in English among their friends. Mak (2011) reported that feeling out

of depth in a speech situation with natives, speaking off-the-cuff in public, having insufficient time to think, and being prohibited from speaking the mother language (L1) are the main factors which contribute to speaking anxiety. Also, Tsiplakides and Keramida (2009) determined that the main features of students with high communication apprehension were loss of motivation for communicating, a struggle to be grammatically accurate while speaking, and over-monitoring themselves in respect of not making any mistakes.

Discussion of the fourth research question: What are Turkish EFL STEM students' perceptions of the major sources of their FLA?

The findings from the qualitative data obtained from the first open-ended question revealed that the main sources of Turkish EFL STEM freshman students' FLA are, in order of importance: a fear of not being able to understand the course, teaching methods, studying in a department which is both difficult and English-medium, a fear of making mistakes, and English not being their native language. Similarly, the findings from the qualitative data obtained from the second open-ended question indicated that a poor English proficiency level contributes most to their FLA. The other major causes of Turkish EFL STEM first-year students FLA were ranked as follows: personal factors (e.g. negative attitudes towards English, lack of self-confidence, academic incompetence, shyness and lack of motivation), teaching methods and language structure (challenges).

In the literature, there are a great number of studies determining the major sources of FLA (Young, 1991; Horwitz, 2001; Aida, 1994; Paramuktiyono & Wardhono, 2016; Ellis, 1994; Al-Khasawneh, 2016; Lababidi, 2016; Chan & Wu, 2004; Aybirdi, 2016).

For example, Young (1991) identified the causes of FLA as follows: individual and inter-individual anxieties, students' BALL, teachers' notions of language teaching, interactions between teacher and student, class procedures, foreign language exams, a competitive environment, low self-respect, and the way teachers correct mistakes. Horwitz (2001) stated that exercises in class may cause anxiety, because an exercise may be detected as relaxing by some students, whereas it may be detected as stressful by others with an unlike cultural background. Aida (1994) identified the major

sources of FLA as feeling frightened of evaluation in a negative way, uneasiness about speaking a foreign language in the lesson, being afraid of making mistakes in front of peers, being scared of not being able to keep pace with the class or pass the class completely, feeling worried while communicating with native speakers of the target language, and negative thoughts about language lessons. Paramuktiyono and Wardhono (2016) reported the major causes of FLA as feeling pressure to pronounce words in English faultlessly, being invited or asked to speak in an English lesson, having difficulty in understanding English, communicating in English among their friends, being afraid of not passing the English course, and lack of preparation for the lessons. Ellis (1994) reported that students' competitive behavior is the source of anxiety.

In addition, Al-Khasawneh (2016) reported that FLA generally arises from anxiety in communication, English class anxiety, fear of negative evaluation and exam anxiety. Elsewhere, Lababidi (2016) identified the five causes of language anxiety as follows: "teacher characteristics, pedagogical practices, fear of making errors, test taking, and previous experience of learning an additional language" (p.190). At the same time, educators' behavior, speaking pace, accent, being native or not, and inequality in interest were found by Lababidi (2016) to be factors arising from teachers. Chan and Wu (2004) reported that poor competence, fear of negative evaluation, competition with each other, a nervous character, and pressure derived from the students themselves and from their parents contribute to FLA. Aybirdi (2016) suggested that personal issues (e.g. low self-esteem, lack of motivation, and timidity), low language ability, deficiencies in learning strategies, teacher-related factors, the issue of grading/testing, the difficulty of English, and finally a negative attitude to language learning were causes of FLA.

Discussion of the fifth research question: Are there any significant differences between male and female Turkish EFL STEM students, with respect to BALL and FLA?

The results of the inferential statistical analysis indicated that the variable ‘gender’ does not make a difference to the students' levels of FLA. In other words, no significant differences were found between male and female participants in terms of

CA, FNE or GFA. Similarly, the results of the descriptive statistical analysis also revealed that female and male participants have similar levels of FLA. Likewise, some studies have indicated that there is not a significant correlation between gender and FLA (Aida, 1994; Wong, 2009; Çapan & Pektaş, 2013; Cubukcu 2008). However, other studies have revealed a significant relationship between gender and FLA (Rezazadeh & Tavakoli, 2009; Gursoy & Arman, 2016; Jafarigohar & Behrooznia, 2012; Tuncer & Doğan, 2015b; Park & French, 2013; Elaldı, 2016; Er, 2011; Aybirdi, 2016; Doğan & Tuncer, 2016). For example, both Rezazadeh and Tavakoli (2009) and Gursoy and Arman (2016) have stated that test anxiety is directly related to gender. Jafarigohar and Behrooznia (2012) found that gender has an impact on learners' FLRA and also that females are more anxious than males. Likewise, Tuncer and Doğan (2015b) revealed that females are more concerned about English than males. Whereas Park and French (2013) and Aybirdi (2016) have reported that the level of FLA of females is higher than that of males, Elaldı (2016) has stated that male students have higher FLA than females.

In terms of the effect of gender on BALL, the results of the inferential statistical analysis revealed that the variable ‘gender’ makes a difference to students' perceptions of the nature of language learning and to their motivation and expectations, but not to their beliefs about the difficulty of language learning, foreign language aptitude, and learning and communication strategies. In other words, whereas a significant difference was found between the genders with regard to NLL and ME, no significant differences were found between male and female participants in terms of DLL, foreign language aptitude or LCS. Similarly, the results of the descriptive statistical analysis also revealed that female and male participants have similar BALL. Whereas several studies have indicated that there is a significant correlation between gender and BALL (Er, 2011; Hismanoglu, 2016), other studies have reported that no significant relationship was found between gender and BALLI (Tercanlioglu, 2005; Han et al., 2016). For example, Hismanoglu (2016) stated that female students have more negative BALL than males, in terms of foreign language aptitude, difficulty of language learning, as well as learning and communication strategies.

Discussion of the sixth research question: Are there any significant differences between Turkish EFL STEM students studying in 30% or 100% English-medium departments, with respect to BALL and FLA?

The results gathered from the FLCAS revealed that the variable 'medium of instruction' does not make a difference to students' levels of FLA. In other words, no significant differences were found between the 30% and 100% medium of instruction groups in terms of CA, FNE or GFA.

The results obtained from the BALLI also indicated that the variable 'medium of instruction' does not make a difference to students' BALL. In other words, it was found that there are no significant differences between the 30% and 100% medium of instruction groups in terms of DLL, foreign language aptitude, NLL, LCS or ME.

To the best of the researcher's knowledge, there have been no studies investigating the differences between students studying in 30% or 100% English-medium departments in terms of BALL and FLA. In this respect, this study contributes to the present literature.

Discussion of the seventh research question: Do Turkish EFL STEM students' BALL and FLA vary in relation to overseas experience?

The inferential statistics results for the FLCAS showed that the variable 'overseas experience' makes a difference to students' levels of FLA. In other words, it was indicated that there are significant differences between participants with overseas experience and those without such experience, in terms of CA, FNE and GFA. Likewise, Aida (1994) has stated that experience abroad plays an important role in students' levels of FLA. Also, Matsuda and Gobel (2004) have suggested that overseas experience has a vital impact on language learners, in terms of FLA and self-assurance in verbal activities. In other words, it was found that students who have been to a country where the target native language is spoken are more self-confident while speaking English during the lesson than those without this experience. However, Doğan and Tuncer (2016) found no significant relationship between experience abroad and FLA.

The inferential statistics results for BALLI showed that the variable ‘overseas experience’ makes a difference to students' perceptions of foreign language aptitude, but not of DLL, NLL, LCS or ME. In other words, a significant difference was found between participants with or without overseas experience only in terms of foreign language aptitude. Contrary to this result, Hismanoglu (2016) has reported that overseas experience has a positive impact on BALL in terms of DLL, LCS and NLL.

Discussion of the eighth research question: Do Turkish EFL STEM students' BALL and FLA vary in relation to their English proficiency levels?

The ANOVA results showed that the variable ‘foreign language proficiency level’ makes a difference to students' level of FLA. In other words, it was found that there were significant differences between students of different proficiency levels in terms of CA, FNE and GFA. Similarly, Matsuda and Gobel (2004) have reported that language proficiency has an impact on FLA.

The ANOVA results showed that the variable ‘foreign language proficiency level’ makes a difference to students' beliefs about NLL, but not about DLL, foreign language aptitude, LCS or ME. In other words, it was found that there is a significant difference between the students of different proficiency levels, only in terms of NLL. Similarly, Fujiwara (2011) has pointed out that learners' language knowledge influences their BALL. Also Wang and Rajprasit (2015) have reported that dissimilar language competences affect BALL.

5.4. Conclusions

First, the quantitative analysis results indicated that there is a positive weak relationship between students' FLA and their BALL. In other words, what students believe about language learning was found to have an effect on their levels of FLA. Second, Turkish freshman EFL engineering students were revealed to have a moderate level of FLA. Among CA, FNA and GFA, the participants suffer most from communication apprehension, followed by GFA and FNE, respectively. The qualitative data showed that a little over half of the respondents were not anxious about the EMI courses. Third, the qualitative data obtained from open-ended questions indicated that Turkish first-year EFL engineering students experience anxiety due to a great number of causes, such as a low English proficiency level, a

fear of not being able to understand the course, teaching methods, personal factors (students' negative attitudes towards English, lack of self-confidence, academic incompetence, shyness and lack of motivation), studying in a department which is both difficult and English-medium, language structure, a fear of making mistakes, and English as not being their native language. Fourth, whereas the variables 'gender' and the 'medium of instruction' were not found to make a difference to the students' level of FLA, the variables 'overseas experience' and 'foreign language proficiency level' were found to make a difference to the students' level of FLA. Fifth, the participants were found to have moderate BALL, such as that English is a language of medium difficulty, that children can learn a foreign language more easily and that everyone can speak a foreign language, that foreign language learning is mostly related to learning a number of lexical items, that repeating and practicing a lot is important for language learning, and that if they speak English very well, they may be able to use it in different situations and find a good job. The qualitative data analysis revealed that the difficulty in learning English arises from repeating and practicing, the teachers' teaching methods, language structure, communication and pronunciation, and personal factors. The other findings were as follows: nearly half of the participants suggested that there are some differences between learning English and learning other subjects, more than half of the participants (57.3%) stated that everybody can learn a foreign language, and the most difficult language skill to learn was revealed to be speaking. Sixth, the qualitative data analysis revealed five major factors affecting BALL: career plan (employment possibility), school readiness, globalizing, level of aspiration, and personal ability. Finally, a significant correlation was found between gender and the students' perceptions of NLL and ME, between overseas experience and the students' perceptions of foreign language aptitude, and between foreign language proficiency level and the students' beliefs about NLL. However, no significant relationship was revealed between the medium of instruction and BALL.

5.5. Implications of the Study

The results of this study revealed the existence of a relationship between Turkish first-year EFL engineering students' FLA and BALL. In other words, what students believe about language learning has an effect on their levels of FLA. In the light of

this, language teachers should regard their students' beliefs about language learning as a factor influencing the effectiveness of the language learning-teaching process. Teachers should consider students' BALL, instead of disregarding them. In this case, teachers will prepare course contents according to their students' needs, interests and beliefs, which will enable them to provide a more efficient learning atmosphere. Moreover, not only teachers but also students should be made more aware of the importance of their BALL. This will enable students to improve their beliefs, adopt more reasonable beliefs, apply more effective learning strategies, and enjoy learning the foreign language more.

Next, as the study indicated, Turkish freshman EFL STEM students have a moderate level of FLA. A large number of factors (a poor English proficiency level, a fear of not being able to understand the course, teaching methods, personal factors, studying in a department which is both difficult and English-medium, language structure, a fear of making mistakes, and English as not being their native language) contribute to the students' FLA. It follows that educators should identify the causes of FLA and create an effective student-centered learning atmosphere, in which anxiety is minimized. Furthermore, students can develop some techniques helping them relieve anxiety, thus they will become more motivated for language learning.

5.6. Limitations of the Study

There are several limitations that need to be admitted and addressed relating to the current study. First, the participants' levels of EFL were assumed to be similar. So they were not conducted a pre-test measuring their English proficiency levels. Second, an exploratory research method was applied in this study. If the study had been a process-based or longitudinal study, the results may have been different. Third, as the data collection instruments, scales and open-ended questions were used. If the data had been collected by means of field notes or diaries, the results may also have been different. The last limitation concerns the sample size. The data were obtained from first-grade EFL engineering students studying at four state universities located in three different regions in Turkey. In this respect, it may not be generalized to all engineering students in Turkey.

5.7. Recommendations for Future Research

There are four recommendations for further studies. First, a pre-test measuring the participants' proficiency levels of EFL could be administered to them. Second, a process-based or longitudinal study might be conducted to investigate the relationship between BALL and FLCA. Third, other research instruments such as field notes, diaries or interviews with students could be used. Finally, further research could be performed with all-year engineering students at universities in each region, thus the results and findings would be generalizable to all engineering students in Turkey.

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7. APPENDICES

7.1. Appendix A: The Turkish Version of the Foreign Language Classroom Anxiety Scale (FLCAS)

Sevgili Öğrenciler,

Bu çalışma, Yüksek Lisans Tezimde kullanılmak üzere yabancı dille öğretim görülen sınıflardaki kaygı düzeylerini ölçmek için gerekli olan maddeleri içermektedir. Lütfen maddelere cevap verirken "**1 (Kesinlikle Katılmıyorum)**" ile "**5 (Kesinlikle Katılıyorum)**" arasındaki derecelendirmede sizin düşüncenize en yakın olan kutucuğu işaretleyiniz (◯). Son üç madde açık uçlu sorulardır. Görüşlerinizi içtenlikle yansıtmanız araştırma açısından çok önemlidir. Ayrıca ölçme aracına yönelik değerlendirme yapabilmem için kişisel bilgiler kısmını eksiksiz doldurmanız gerekmektedir. Fakat ankete isminizi yazmanız gerekmemektedir. Bu ölçekten elde edilecek veriler sadece akademik çalışmamda (tezimde) kullanılacaktır. Katkılarınız için şimdiden çok teşekkür ederim.

Okt. Zafer SARI

A. Kişisel Bilgiler

1. Üniversiteniz : .....

2. Bölümünüz : .....

3. Öğrenim Türü : ☐ I. Öğretim ☐ II. Öğretim

4. Eğitim Dili : ☐ %30 İngilizce ☐ %100 İngilizce

5. Dil Seviyeniz : ☐ Başlangıç ☐ Orta ☐ Orta - üstü ☐ İleri

6. Lisede veya üniversitede hazırlık okudunuz mu?: ☐ Evet ☐ Hayır

7. İngilizce konuşulan bir ülkede bulundunuz mu?: ☐ Evet ☐ Hayır

8. Cinsiyetiniz: ☐ Erkek ☐ Kadın

9. Yaşınız : .....

B. YABANCI DİLDE EĞİTİM VERİLEN SINIFLARDAKİ KAYGI DÜZEYİ ÖLÇEĞİ

Kesinlikle Katılmıyorum>> Katılmıyorum>> Kararsızım>> Katılıyorum>> Kesinlikle katılıyorum

1>>>>>>>>>>>>2>>>>>>>>>>>>3>>>>>>>>>>>>4>>>>>>>>>>>>5

MADDELER	(1) Kesinlikle Katılmıyorum	(2) Katılmıyorum	(3) Kararsızım	(4) Katılıyorum	(5) Kesinlikle Katılıyorum
1. İngilizce derslerinde konuşurken hiçbir zaman kendimden tam olarak emin olamıyorum.	1	2	3	4	5
2. İngilizce derslerinde hata yaparım diye endişelenmem.	1	2	3	4	5
3. İngilizce derslerinde konuşma sırasının bana geldiğini anladığımda elim ayağım titriyor.	1	2	3	4	5
4. Öğretmenin İngilizce olarak söylediği şeyleri anlayamamak beni korkutuyor.	1	2	3	4	5
5. İngilizce ders saatlerinin arttırılması beni rahatsız etmez.	1	2	3	4	5
6. İngilizce dersleri sırasında, sık sık kendimi dersle ilgisi olmayan şeyler düşünürken buluyorum.	1	2	3	4	5
7. Sürekli olarak diğer öğrencilerin İngilizce seviyelerinin benden daha iyi olduğunu düşünüp duruyorum.	1	2	3	4	5
8. İngilizce sınavlarında kendimi rahat hissediyorum.	1	2	3	4	5
9. İngilizce derslerinde hazırlıksız konuşmak zorunda kaldığım zaman telaşa kapılıyorum.	1	2	3	4	5
10. İngilizce derslerinde başarısız olmam durumunda karşılaşabileceğim sorunlar beni endişelendiriyor.	1	2	3	4	5
11. Bazı insanların İngilizce derslerini neden bu kadar sorun yaptıklarını anlamıyorum.	1	2	3	4	5
12. İngilizce derslerinde bildiğim şeyleri unutacak ölçüde gergin olabiliyorum.	1	2	3	4	5
13. İngilizce derslerinde bir soruya gönüllü olarak cevap vermekten utanıyorum.	1	2	3	4	5
14. Anadili İngilizce olan biriyle konuşmak beni huzursuz etmez.	1	2	3	4	5
15. Öğretmenin konuşmamda ne hata bulduğunu anlamadığım zaman üzülürüm.	1	2	3	4	5
16. İngilizce derslerine iyi hazırlanmış olsam bile, yine kaygı duyuyorum.	1	2	3	4	5
17. Çoğu zaman İngilizce derslerine gitmek içimden gelmiyor.	1	2	3	4	5

18. İngilizce derslerinde konuşurken kendime güveniyorum.	1	2	3	4	5
19. İngilizce öğretmenimin yaptığım her hatayı düzeltmek için hazır beklediği düşüncesi beni korkutuyor.	1	2	3	4	5
20. İngilizce derslerinde bana söz verildiğinde kalbimin hızla çarptığını hissediyorum.	1	2	3	4	5
21. Bir İngilizce sınavına ne kadar çok çalışırsam çalışayım yine de kafam karışır.	1	2	3	4	5
22. İngilizce derslerine iyi hazırlanmak için üzerimde bir baskı hissetmiyorum.	1	2	3	4	5
23. Her zaman diğer öğrencilerin İngilizce'yi benden daha iyi konuştukları duygusuna kapılıyorum.	1	2	3	4	5
24. İngilizce'yi diğer öğrencilerin önünde konuşmak konusunda çok çekingenim.	1	2	3	4	5
25. İngilizce dersleri o kadar hızlı ilerliyor ki geride kalmaktan korkuyorum.	1	2	3	4	5
26. İngilizce derslerinde kendimi diğer derslerde olduğundan daha gergin ve huzursuz hissediyorum.	1	2	3	4	5
27. İngilizce derslerinde konuşurken heyecanlanıyorum ve kafam karışıyor.	1	2	3	4	5
28. İngilizce derslerine giderken oldukça rahat ve kendimden emin oluyorum.	1	2	3	4	5
29. İngilizce öğretmeninin söylediği her sözü anlamazsam endişeleniyorum.	1	2	3	4	5
30. İngilizce konuşmak için öğrenilmesi gereken kuralların çokluğu altında ezildiğimi hissediyorum.	1	2	3	4	5
31. İngilizce konuştuğum zaman diğer öğrencilerin benimle alay edeceklerinden korkuyorum.	1	2	3	4	5
32. Anadili İngilizce olan yabancılar arasında bulunsam kendimi büyük bir olasılıkla rahat hissederim.	1	2	3	4	5
33. İngilizce dersi öğretmeni hazırlıklı olmadığım konularda sorular sorduğunda kendimi huzursuz hissediyorum.	1	2	3	4	5

Songül ÇELEBİ (2009)'nin yüksek lisans tezinden alınmıştır.

The items 1, 3, 4, 7, 9, 10, 12, 13, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 29, 30, 31 and 33 were pointed from 1, 2, 3, 4 to 5. The items 2, 5, 8, 11, 14, 18, 22, 28 and 32 were pointed from 5, 4, 3, 2 to 1 (as cited in Çelebi, 2009, p. 98).

C. Açık Uçlu Sorular

1. İngilizce verilen derslerde kaygı yaşar mısınız? Sizce sebebi nedir?
2. İngilizce'ye olan kaygınıza en çok neler sebep olur?
3. İngilizce verilen derslerde kendinizi nasıl hissedersiniz?

7.2. Appendix B: The Foreign Language Classroom Anxiety Scale (FLCAS - Original Version) (Horwitz, Horwitz, & Cope, 1986).

Dear Students,

This study includes items necessary to measure levels of anxiety in classrooms where the medium of instruction is English and the data to be obtained as a result of this study will be used in my master's thesis. While responding to the items, please mark the box closest to your thought at the rating between "**1 (Strongly Disagree)**" and "**5 (Strongly Agree)**" (◯). The last three items are open-ended questions. It is very important to reflect your views sincerely in terms of research. In addition, for me to be able to evaluate the measurement tool, you need to fill in the personal information part completely. However, you don't have to write your name on the survey. The data to be obtained from this scale will be only used in my academic study (master's study). Thank you in advance for your contributions.

Inst. Zafer SARI

A. Personal Information

1. University : .....

2. Department : .....

3. Type of Education : ☐ Daytime ☐ Evening

4. Medium of Instruction: ☐ %30 English ☐ %100 English

5. Eng. Proficiency Level: ☐ Elementary ☐ Pre-Intermediate ☐ Intermediate - Upper ☐ Advanced

6. Did you study in preparatory class at high school or university?: ☐ Yes ☐ No

7. Have you ever been to a country in which English is spoken?: ☐ Yes ☐ No

8. Gender : ☐ Male ☐ Female

9. Age : .....

B. SCALE FOR ANXIETY LEVEL IN CLASSROOMS WHERE EDUCATION IS GIVEN IN FOREIGN LANGUAGE

Strongly Disagree>> Disagree>> Neither agree nor disagree>> Agree>> Strongly Agree

1>>>>>>>>>>>>2>>>>>>>>>>>>3>>>>>>>>>>>4>>>>>>>>>>>>5

ITEMS	(1) Strongly Disagree	(2) Disagree	(3) Neither agree nor disagree	(4) Agree	(5) Strongly Agree
1. I never feel quite sure of myself when I am speaking in my foreign language class.	1	2	3	4	5
2. I *don't* worry about making mistakes in language class.	1	2	3	4	5
3. I tremble when I know that I'm going to be called on in language class.	1	2	3	4	5
4. It frightens me when I don't understand what the teacher is saying in the foreign language.	1	2	3	4	5
5. It wouldn't bother me at all to take more foreign language classes.	1	2	3	4	5
6. During language class, I find myself thinking about things that have nothing to do with the course.	1	2	3	4	5
7. I keep thinking that the other students are better at languages than I am.	1	2	3	4	5
8. I am usually at ease during tests in my language class.	1	2	3	4	5
9. I start to panic when I have to speak without preparation in language class.	1	2	3	4	5
10. I worry about the consequences of failing my foreign language class.	1	2	3	4	5
11. I don't understand why some people get so upset over foreign language classes.	1	2	3	4	5
12. In language class, I can get so nervous I forget things I know.	1	2	3	4	5
13. It embarrasses me to volunteer answers in my language class.	1	2	3	4	5
14. I would *not* be nervous speaking the foreign language with native speakers.	1	2	3	4	5
15. I get upset when I don't understand what the teacher is correcting.	1	2	3	4	5
16. Even if I am well prepared for language class, I feel anxious about it.	1	2	3	4	5

17. I often feel like not going to my language class.	1	2	3	4	5
18. I feel confident when I speak in foreign language class.	1	2	3	4	5
19. I am afraid that my language teacher is ready to correct every mistake I make.	1	2	3	4	5
20. I can feel my heart pounding when I'm going to be called on in language class.	1	2	3	4	5
21. The more I study for a language test, the more confused I get.	1	2	3	4	5
22. I *don't* feel pressure to prepare very well for language class.	1	2	3	4	5
23. I always feel that the other students speak the foreign language better than I do.	1	2	3	4	5
24. I feel very self-conscious about speaking the foreign language in front of other students.	1	2	3	4	5
25. Language class moves so quickly I worry about getting left behind.	1	2	3	4	5
26. I feel more tense and nervous in my language class than in my other classes.	1	2	3	4	5
27. I get nervous and confused when I am speaking in my language class.	1	2	3	4	5
28. When I'm on my way to language class, I feel very sure and relaxed.	1	2	3	4	5
29. I get nervous when I don't understand every word the language teacher says.	1	2	3	4	5
30. I feel overwhelmed by the number of rules you have to learn to speak a foreign language.	1	2	3	4	5
31. I am afraid that the other students will laugh at me when I speak the foreign language.	1	2	3	4	5
32. I would probably feel comfortable around native speakers of the foreign language.	1	2	3	4	5
33. I get nervous when the language teacher asks questions which I haven't prepared in advance.	1	2	3	4	5

Horwitz, Horwitz, & Cope (1986)

C. Open-Ended Questions

1. Do you feel anxiety in English-medium courses? Why?
2. What contributes most to your anxiety about English?
3. How do you feel in English-medium courses?

7.3. Appendix C: The Turkish Version of the Beliefs about Language Learning Inventory (BALLI)

YABANCI DİL ÖĞRENME YARGILARI ENVANTERİ

A. Lütfen aşağıdaki ölçek maddeleri dikkatlice okuyunuz ve size en uygun seçeneği işaretleyiniz

Kesinlikle Katılmıyorum>> Katılmıyorum>>Kararsızım>>Katılıyorum>> Kesinlikle katılıyorum

1>>>>>>>>>>>>>2>>>>>>>>>>>>>3>>>>>>>>>>>>>4>>>>>>>>>>>>>5

MADDELER	(1) Kesinlikle Katılmıyorum	(2) Katılmıyorum	(3) Kararsızım	(4) Katılıyorum	(5) Kesinlikle Katılıyorum
1. Çocuklar bir yabancı dili yetişkinlere göre daha kolay öğrenir.	1	2	3	4	5
2. Bazı insanlar yabancı bir dili öğrenmelerini kolaylaştıran özel bir yetenekle doğar.	1	2	3	4	5
3. Bazı dillerin öğrenilmesi diğerlerine göre daha kolaydır.	1	2	3	4	5
4. Öğrenmeye çalıştığım dil 1) çok zor bir dildir, 2) zor bir dildir, 3) orta zorlukta bir dildir, 4) kolay bir dildir, 5) çok kolay bir dildir.	1	2	3	4	5
5. Diğer insanlarla yabancı dilde konuşmaktan utanırım/çekinirim.	1	2	3	4	5
6. En sonunda bu dili çok iyi konuşabileceğime inanıyorum.	1	2	3	4	5
7. Yabancı bir dili mükemmel bir aksanla konuşmak önemlidir.	1	2	3	4	5
8. Yabancı bir dili konuşmak için, o dili konuşan yabancı ülkenin kültürünü bilmek gerekir.	1	2	3	4	5
9. Doğru söylemeyi öğreninceye kadar yabancı dilde bir şey söylememelisin.	1	2	3	4	5
10. Bir yabancı dili konuşabilen bir kimse için başka bir dili öğrenmek daha kolaydır.	1	2	3	4	5
11. Yabancı bir dili o dilin konuşulduğu ülkede öğrenmek daha iyidir.	1	2	3	4	5
12. Öğrenmeye çalıştığım dili konuşan birini duyarsam, pratik yapmak için gidip onunla konuşurum.	1	2	3	4	5
13. Yabancı dilde bir sözcüğü bilmiyorsanız, onu tahmin edersiniz.	1	2	3	4	5
14. Bir kimse dil öğrenmeye günde bir saat harcarsa, akıcı bir şekilde konuşmaya başlaması ne kadar zaman alır? 1)1 yıldan az, 2) 1-2 yıl, 3) 3-5 yıl, 4) 5-10 yıl, 5) Günde 1 saat	1	2	3	4	5

çalışarak dil öğrenilmez.					
15. Yabancı dil öğrenme yeteneğim var.	1	2	3	4	5
16. Yabancı bir dili öğrenmek çoğunlukla çok sayıda yeni sözcük öğrenmekle olur.	1	2	3	4	5
17. Çok tekrar ve pratik yapmak önemlidir.	1	2	3	4	5
18. Başka insanların önünde yabancı dilde konuştuğumda utanırım.	1	2	3	4	5
19. Başlangıçta hata yapmana izin verilirse, bu hatalar yerleşir ve daha sonra onlardan kurtulmak zor olur.	1	2	3	4	5
20. Yabancı bir dili öğrenmek çoğunlukla çok sayıda gramer/dilbilgisi kuralı öğrenmekle olur.	1	2	3	4	5
21. Dil laboratuarında pratik yapmak önemlidir.	1	2	3	4	5
22. Kadınlar yabancı dil öğrenmede erkeklerden daha iyidir.	1	2	3	4	5
23. Bu dili çok iyi öğrenirsem, onu kullanmak için çok fırsatım olacaktır.	1	2	3	4	5
24. Yabancı bir dili konuşmak onu anlamaktan daha kolaydır.	1	2	3	4	5
25. Yabancı bir dili öğrenmek diğer okul derslerini öğrenmekten farklıdır.	1	2	3	4	5
26. Yabancı bir dili öğrenmek çoğunlukla çeviri yapmakla olur.	1	2	3	4	5
27. Bu dili çok iyi öğrenirsem, bu iyi bir iş bulmama yardımcı olacak.	1	2	3	4	5
28. İngilizcede okuma ve yazma, konuşma ve duyduğunu anlamadan daha kolaydır.	1	2	3	4	5
29. Matematik ve fende iyi olan insanlar yabancı dil öğrenmede iyi değillerdir.	1	2	3	4	5
30. Türkler, bir yabancı dili öğrenmenin önemli olduğunu düşünür.	1	2	3	4	5
31. Bu dili, onu ana dili olarak konuşan insanları daha iyi tanımak için öğrenmek istiyorum.	1	2	3	4	5
32. Birden fazla dil konuşan insanlar çok zekidirler.	1	2	3	4	5
33. Türkler yabancı dil öğrenme konusunda iyidirler.	1	2	3	4	5
34. Herkes bir yabancı dili konuşmayı öğrenebilir.	1	2	3	4	5

Başaran ve Cabaroğlu (2014)'nun makalesinden alınmıştır.

The items except for 4 and 14 were pointed from (strongly agree) 5,4,3,2 to 1 (strongly disagree). The items 4 and 14 were dealt independently.

B. Açık Uçlu Sorular

1. Sizce İngilizce öğrenmedeki güçlükler nelerdir?
2. Sizce İngilizce öğrenme ve diğer öğrenmeler (matematik, fizik, vb.) arasında fark var mıdır? Varsa nelerdir?
3. Dil öğrenme hakkındaki inançlarınızı etkileyen üç önemli faktör nedir?
4. Herkesin yabancı dil öğrenebileceğini düşünüyor musunuz? Neden?
5. Sizce yabancı bir dilde öğrenilmesi en zor beceri hangisidir?

7.4. Appendix D: The Beliefs about Language Learning Inventory (BALLI - Original Version) (Horwitz, 1988)

ITEMS	(1) Strongly Disagree	(2) Disagree	(3) Neither agree nor disagree	(4) Agree	(5) Strongly Agree
1. It is easier for children to learn a foreign language.	1	2	3	4	5
2. Some people are born with a special ability which helps them learn a foreign language.	1	2	3	4	5
3. Some languages are easier to learn than others.	1	2	3	4	5
4. The language I am trying to learn is : 1) a very difficult language, 2) a difficult language, 3) a language of medium difficulty, 4) an easy language, 5) a very easy language	1	2	3	4	5
5. I believe that I will learn to speak this language very well.	1	2	3	4	5
6. People from my country are good at learning foreign languages.	1	2	3	4	5
7. It is important to speak a foreign language with an excellent accent.	1	2	3	4	5
8. It is necessary to know the foreign culture in order to speak the foreign language.	1	2	3	4	5
9. You shouldn't say anything in the foreign language until you can say it correctly.	1	2	3	4	5
10. It is easier for someone who already speaks a foreign language to learn another one.	1	2	3	4	5
11. It is better to learn a foreign language in the foreign country.	1	2	3	4	5
12. If I heard someone speaking the language I am trying to learn, I would go up to them so that I could practice speaking the language.	1	2	3	4	5
13. It's OK to guess if you don't know a word in the foreign language.	1	2	3	4	5
14. If someone spent one hour a day learning a language, how long would it take them to become fluent? 1) less than a year, 2) 1-2 years, 3) 3-5 years, 4) 5-10 years, 5) you can't learn a language in 1 hour a day.	1	2	3	4	5

15. I have foreign language aptitude.	1	2	3	4	5
16. Learning a foreign language is mostly a matter of learning a lot of new vocabulary words.	1	2	3	4	5
17. It is important to repeat and practice a lot.	1	2	3	4	5
18. I feel self-conscious speaking the foreign language in front of other people.	1	2	3	4	5
19. If you are allowed to make mistakes in the beginning, it will be hard to get rid of them later on.	1	2	3	4	5
20. Learning a foreign language is mostly a matter of learning a lot of grammar rules.	1	2	3	4	5
21. It is important to practice in the language laboratory.	1	2	3	4	5
22. Women are better than men at learning foreign languages.	1	2	3	4	5
23. If I get to speak this language very well, I will have many opportunities to use it.	1	2	3	4	5
24. It is easier to speak than understand a foreign language.	1	2	3	4	5
25. Learning a foreign language is different from learning other school subjects.	1	2	3	4	5
26. Learning a foreign language is mostly a matter of translating from English.	1	2	3	4	5
27. If I learn to speak this language very well, it will help me get a good job.	1	2	3	4	5
28. It is easier to read and write this language than to speak and understand it.	1	2	3	4	5
29. People who are good at math and science are not good at learning foreign language.	1	2	3	4	5
30. Americans think that it is important to speak a foreign language.	1	2	3	4	5
31. I would like to learn this language so that I can get to know its speakers better.	1	2	3	4	5
32. People who speak more than one language well are very intelligent.	1	2	3	4	5
33. Americans are good at learning foreign languages.	1	2	3	4	5
34. Everyone can learn to speak a foreign language.	1	2	3	4	5

Horwitz (1988)

B. Open-Ended Questions

1. What are the difficulties in learning English?
2. Are there any differences between English learning and learning in other fields (mathematics, physics, etc.)? If so, what?
3. What are the three important factors that influence your BALL?
4. Do you think that everybody can learn a foreign language? Why?
5. What is the most difficult skill to learn in a foreign language?

7.5. Appendix E: Bilgilendirilmiş Onam Formu

Bilgilendirilmiş Onam Formu

Tez Başlığı: *"Yabancı Dil Öğrenme Hakkındaki İnançlar ve Yabancı Dil Kaygısı: Türkiye'deki Üniversitelerde Öğrenim Gören İngilizce Mühendislik Öğrencileri Üzerine Bir Çalışma"*

Araştırmacılar

Yrd. Doç. Dr. Turgay HAN
turgayhan@yahoo.com.tr
Kafkas Üniversitesi

Okt. Zafer SARI
zafersari26@hotmail.com
Kafkas Üniversitesi

Gizlilik

Toplanan verilerin gizli tutulması için her türlü çaba gösterilecektir. Sizin hakkınızdaki kişisel bilgiler sadece yasal olarak gerekli durumlarda açıklanır. Fakat, mutlak gizlilik garanti edilemez. Bu anketten elde edilen bilgiler bu çalışma doğrultusunda değerlendirilip, bu çalışma için kullanılacaktır. Adınız kullanılmayacaktır.

Veri Güvenliği

Eğer sizin verileriniz bir bilgisayarda depolanırsa, bu bilgisayar sadece araştırmacılar tarafından kullanılacaktır, ve sadece onlar bu bilgilere erişim sağlayacaktır.

Çalışma Sonuçları

Eğer çalışmanın sonuçları hakkında bilgi almak isterseniz, bize ulaştığınız taktirde size bilgi verilecektir.

Ödeme

Ankete katıldığınız için size ödeme yapılmayacaktır.

Katılımcı olarak Haklarınız

Bu çalışmaya katılımınız tamamen gönüllülük esasına dayalıdır. Doldurduğunuz anketin kullanılmamasını istediğiniz takdirde hiç bir ceza ya da yaptırım uygulanmaz.

Sorular

Sormak istediğiniz her hangi bir soru olduğunda bana e-posta adresimden (zafersari26@hotmail.com) ya da **0544 6519327** no'lu telefon numarasından ulaşabilirsiniz.

Açıklamalar

Çalışma hakkında gerekli bilgiler katılımcıya tam olarak açıklanmıştır. Katılımcıların sordukları tüm sorular cevaplanmıştır.

Araştırmacıların imzaları _____ _____ Tarih: _____

Katılımcının onayı / rızası

Bilgilendirilmiş onam formundaki tüm bilgileri okudum. Tüm sorularım cevaplandı. Bu çalışmaya gönüllü olarak katılmak istiyorum.

Adınız: _____İmzanız _____Tarih: _____

*Adapted from Mackey, A., & Gass, S. M. (2005). *Second Language Research: Methodology and Design.* New Jersey: Lawrence Erlbaum Associates Publishers.

7.6. Appendix F: Informed Consent Form

Consent to Participate in Research

Project Title: *"Beliefs About Foreign Language Learning and Foreign Language Anxiety: A Study on English Engineering Students Studying at Universities in Turkey"*

Researchers

Assist. Prof. Dr. Turgay HAN
turgayhan@yahoo.com.tr
Kafkas University

Inst. Zafer SARI
zafersari26@hotmail.com
Kafkas University

Confidentiality

Every effort will be made to keep the data collected confidential. We will disclose personal information about you only if required to do so by the law. However, we cannot guarantee absolute confidentiality. Whenever the data from this study are published, your name will not be used.

Data Security

If information about your participation in the study is stored in a computer, the computer will not be part of a network and only the researchers will have access to the data.

New findings

If you would like us to, we will contact you to explain the results of our study after the study has been concluded.

Payment

You will not be paid for participating in this study.

Your rights as a participant

Your participation in this study is entirely voluntary. You have the right not to provide essays that will be used to collect data for this study. Leaving the study will not result in any penalty or affect your relations with your professor or university. Should you decide not to participate in the study, tell your professor or the researcher.

Problems and questions

Email zafersari26@hotmail.com or call **0544 6519327** if you have any questions or problems.

Researchers' Statement

We have fully explained this study to the participant. We have discussed the procedures and have answered all of the questions that the participant has asked.

Signatures of the researchers _____ _____Date: _____

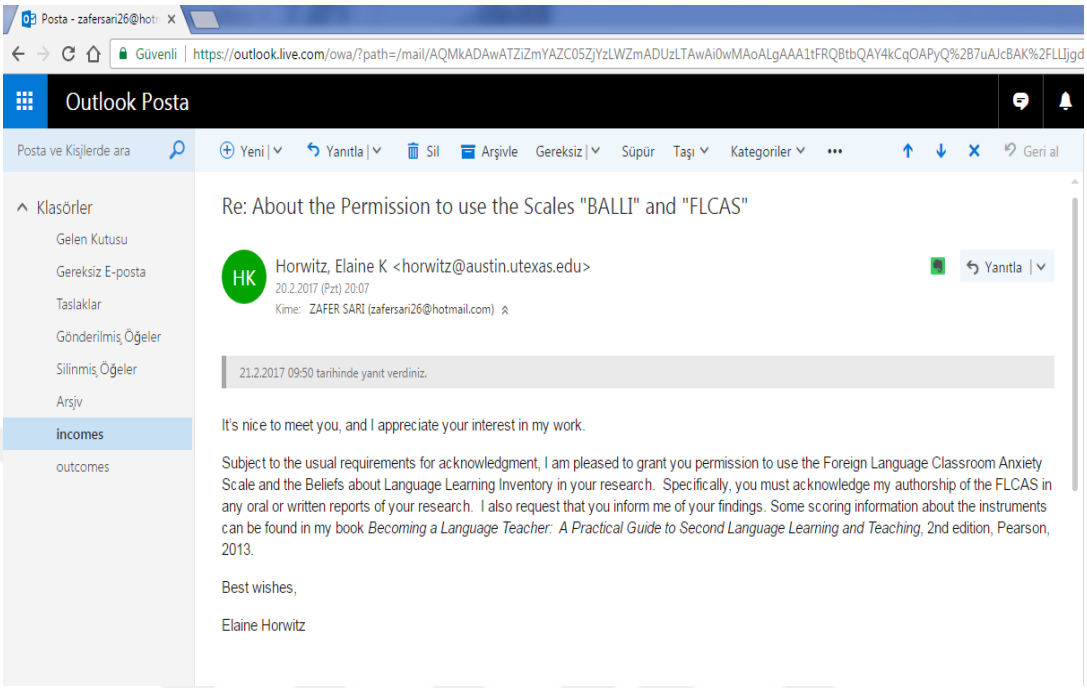
Participant's consent

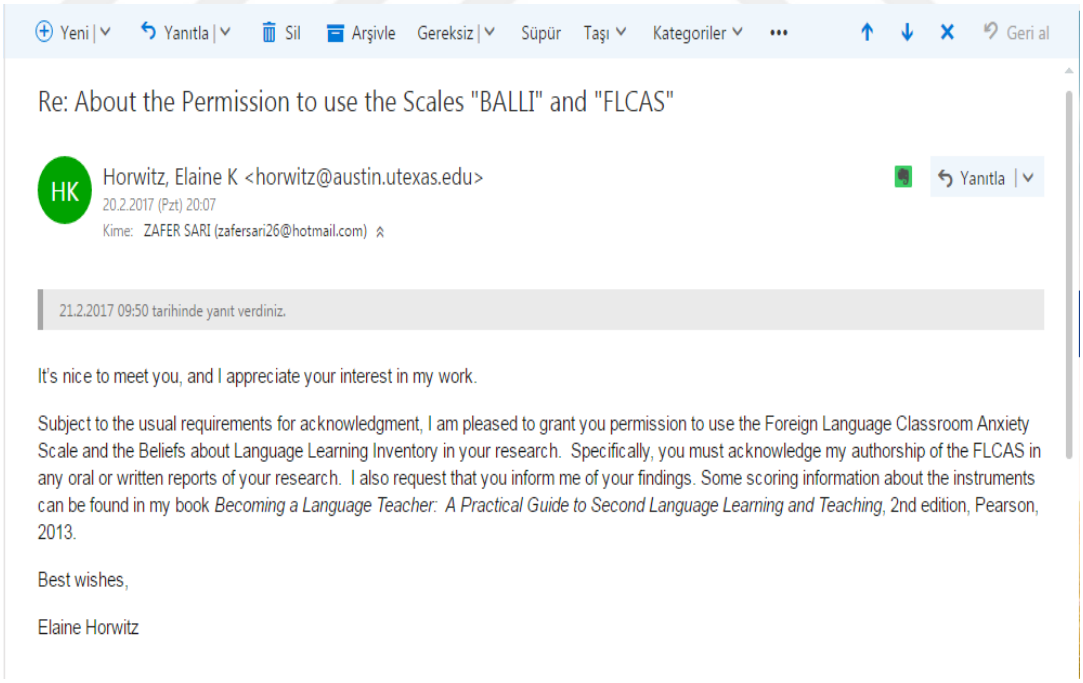
I have read the information provided in this Informed Consent Form. All my questions were answered to my satisfaction. I voluntarily agree to participate in this study.

Your name: _____Your signature _____Date: _____

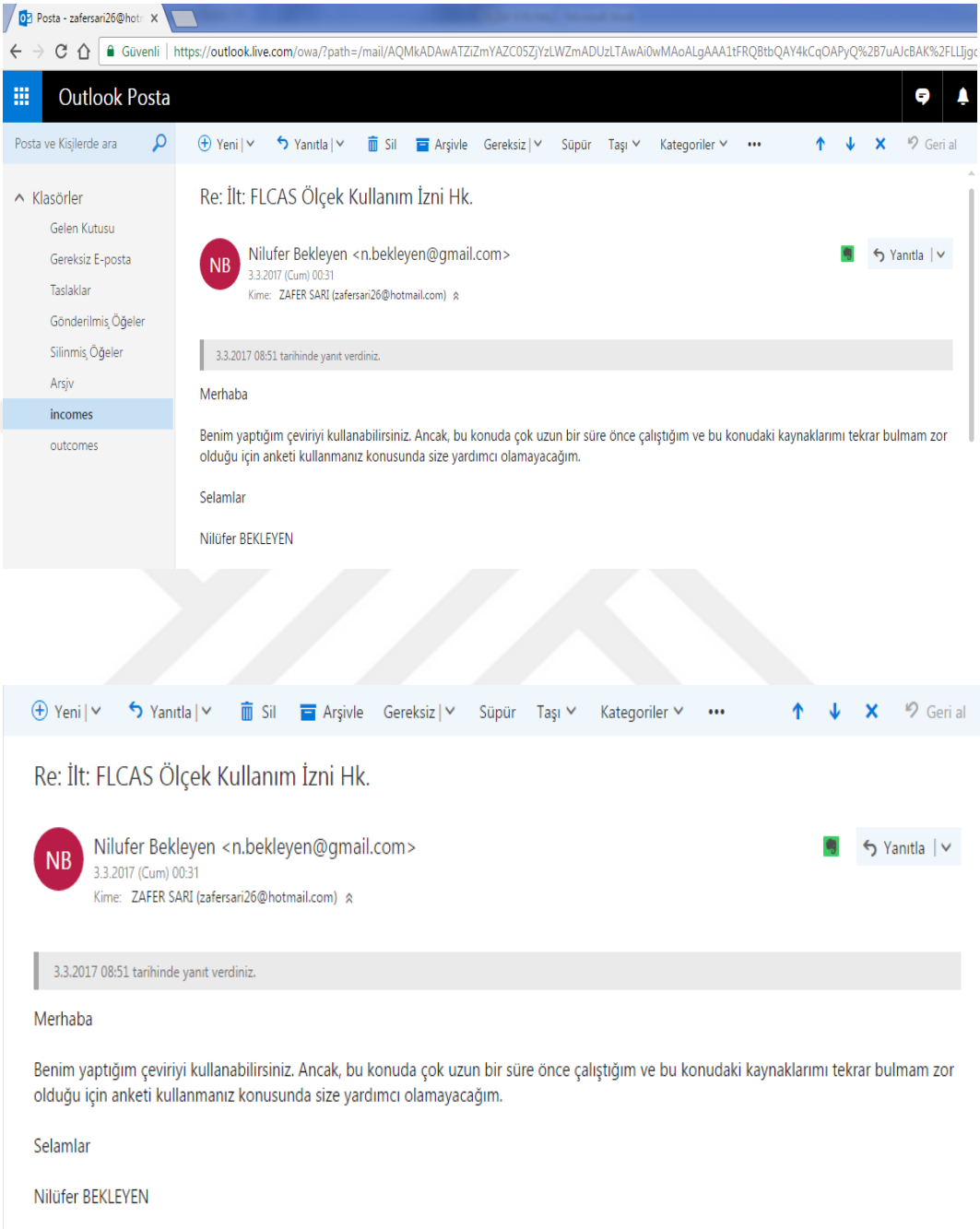
*Adapted from Mackey, A., & Gass, S. M. (2005). *Second Language Research: Methodology and Design*. New Jersey: Lawrence Erlbaum Associates Publishers.

7.7. Appendix G: Permission E-mail of HORWITZ



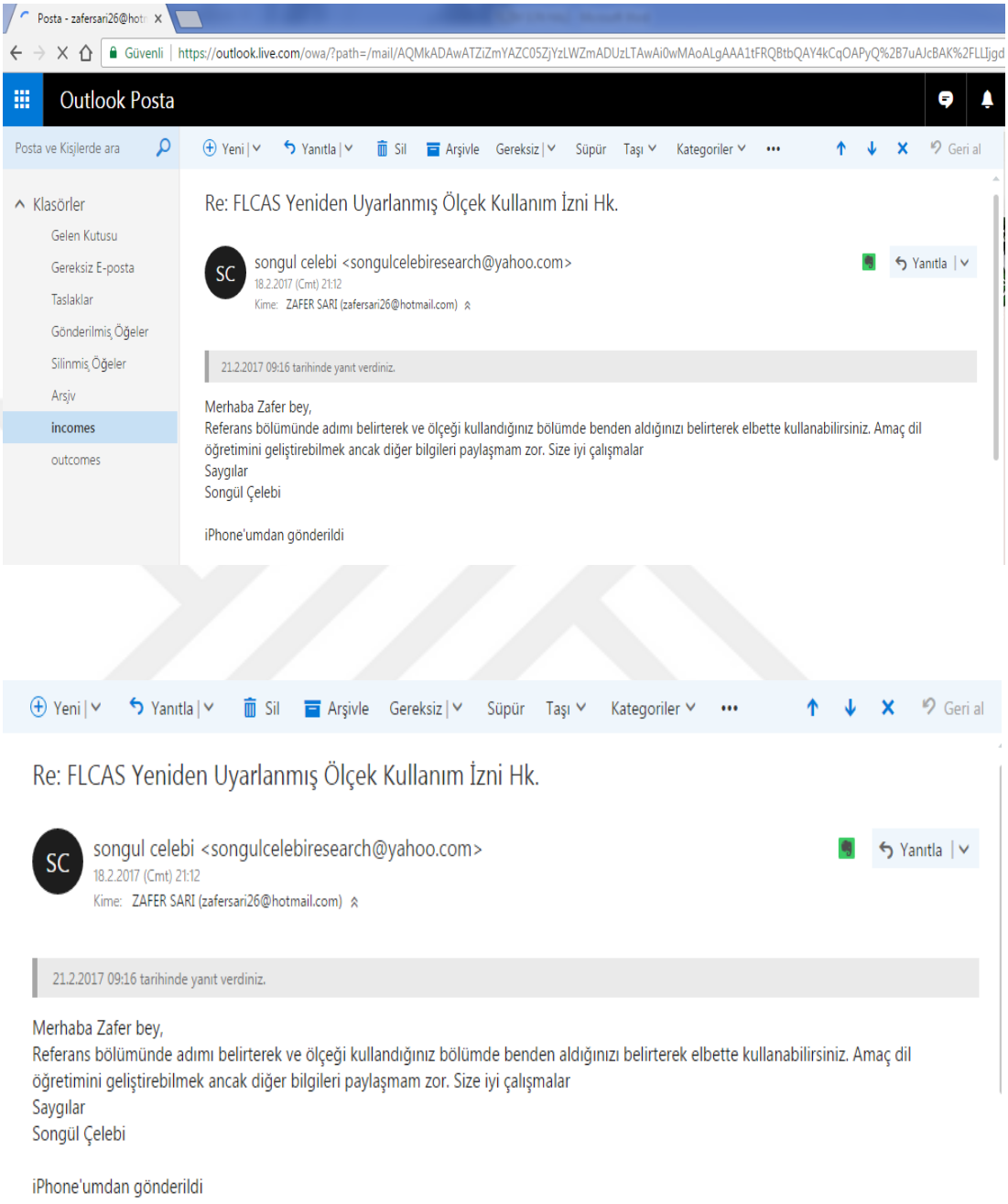


7.8. Appendix H: Permission E-mail of DALKILIÇ



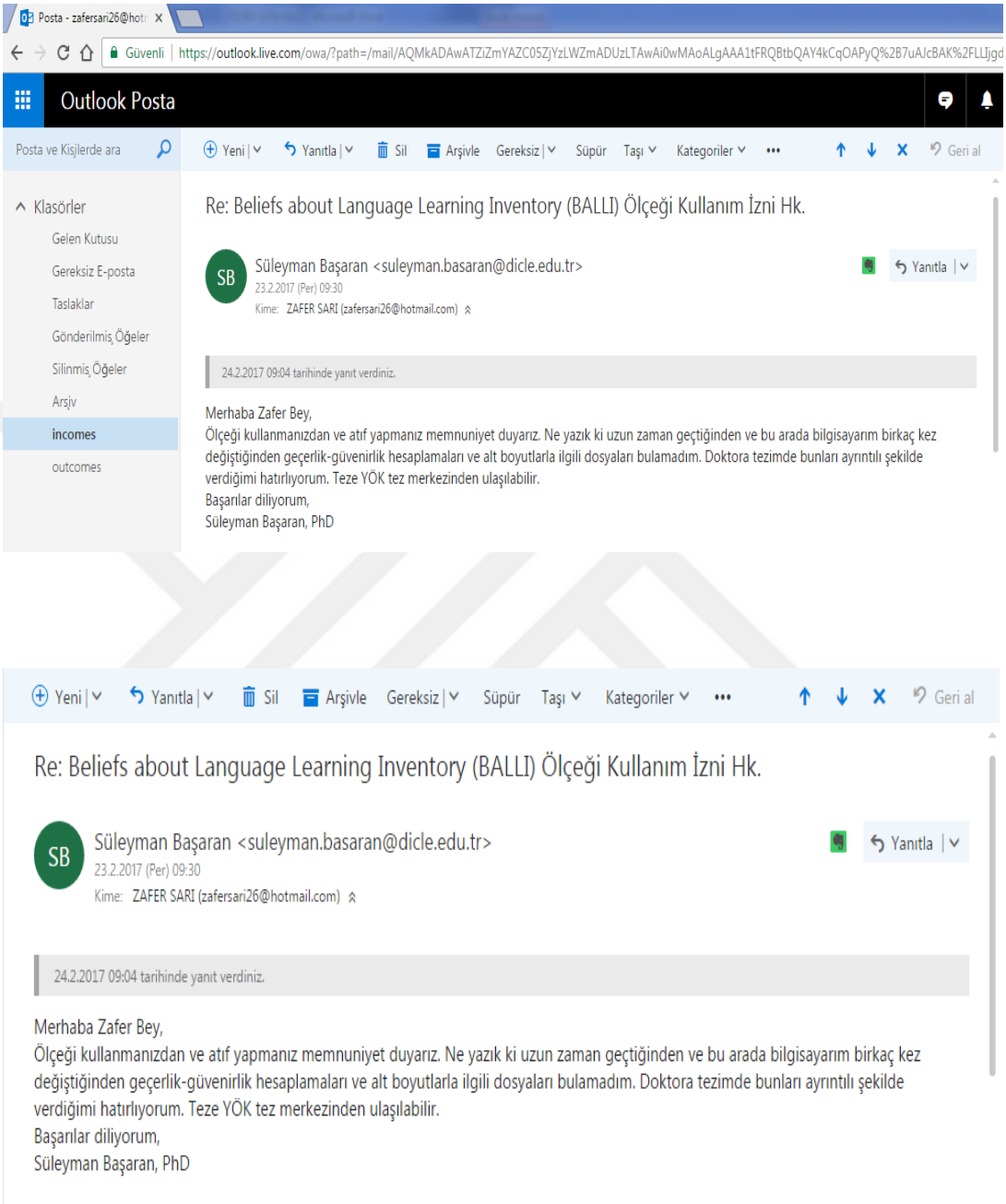
Yeni | Yanıtla | Sil Arşivle Gereksiz | Süpür Taşı Kategoriler Geri al
Re: İlt: FLCAS Ölçek Kullanım İzni Hk.
NB
Nilufer Bekleyen <n.bekleyen@gmail.com>
3.3.2017 (Cum) 00:31
Kime: ZAFER SARI (zafersari26@hotmail.com)
Yanıtla
3.3.2017 08:51 tarihinde yanıt verdiniz.
Merhaba
Benim yaptığım çeviriyi kullanabilirsiniz. Ancak, bu konuda çok uzun bir süre önce çalıştığım ve bu konudaki kaynaklarımı tekrar bulmam zor olduğu için anketi kullanmanız konusunda size yardımcı olamayacağım.
Selamlar
Nilüfer BEKLEYEN

7.9. Appendix I: Permission E-mail of ÇELEBİ



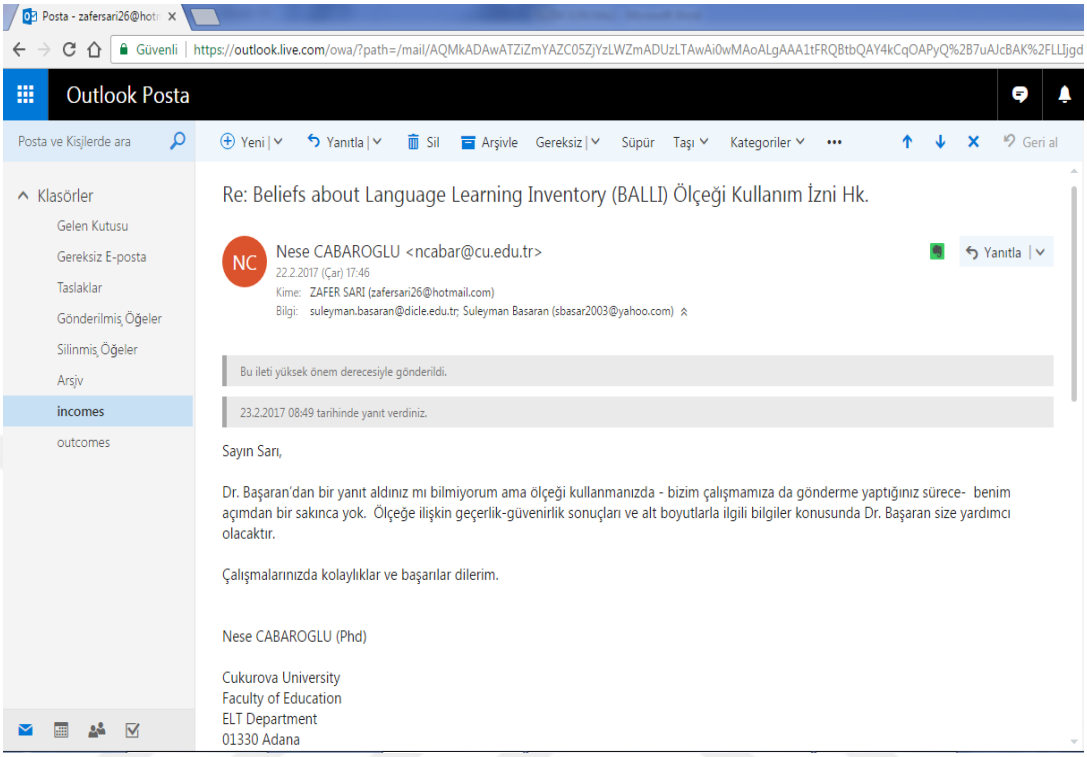
Yeni | Yanıtla | Sil Arşivle Gereksiz | Süpür Taşı Kategoriler ••• Geri al
Re: FLCAS Yeniden Uyarlanmış Ölçek Kullanım İzni Hk.
SC
songul celebi <songulcelebiresearch@yahoo.com>
18.2.2017 (Cmt) 21:12
Kime: ZAFER SARI (zafersari26@hotmail.com)
Yanıtla
21.2.2017 09:16 tarihinde yanıt verdiniz.
Merhaba Zafer bey,
Referans bölümünde adımı belirterek ve ölçeği kullandığınız bölümde benden aldığınızı belirterek elbette kullanabilirsiniz. Amaç dil öğretimini geliştirebilmek ancak diğer bilgileri paylaşmam zor. Size iyi çalışmalar
Saygılar
Songül Çelebi
iPhone'umdan gönderildi

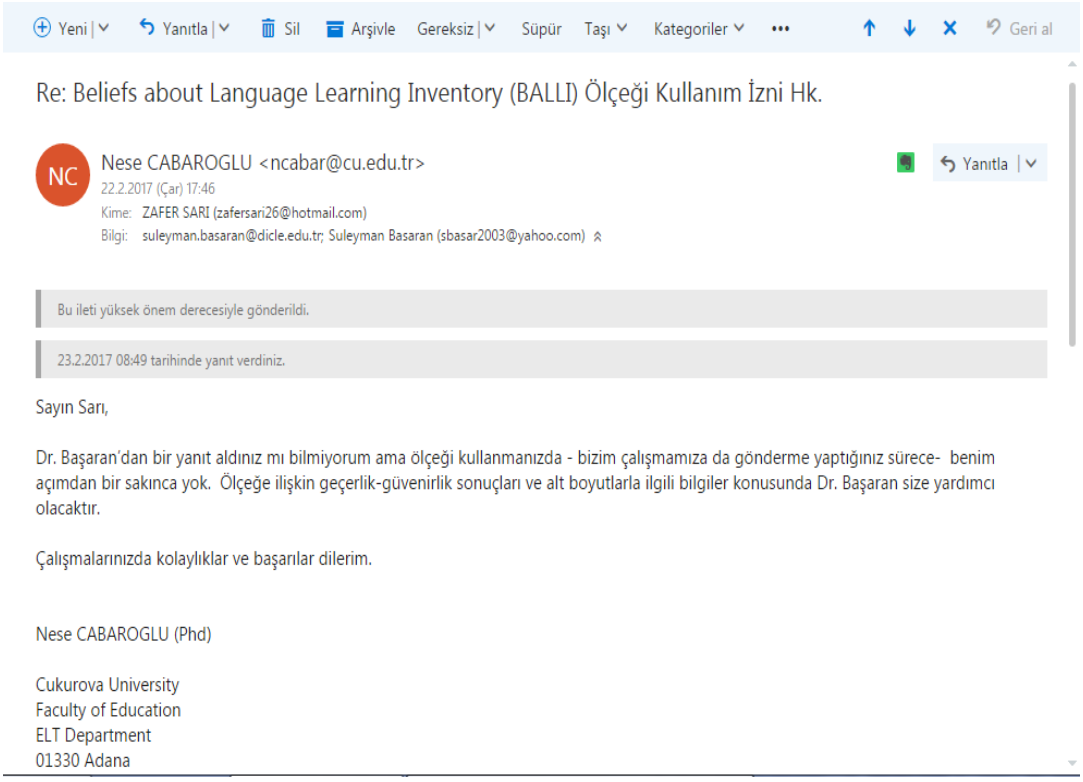
7.10. Appendix J: Permission E-mail of BAŞARAN



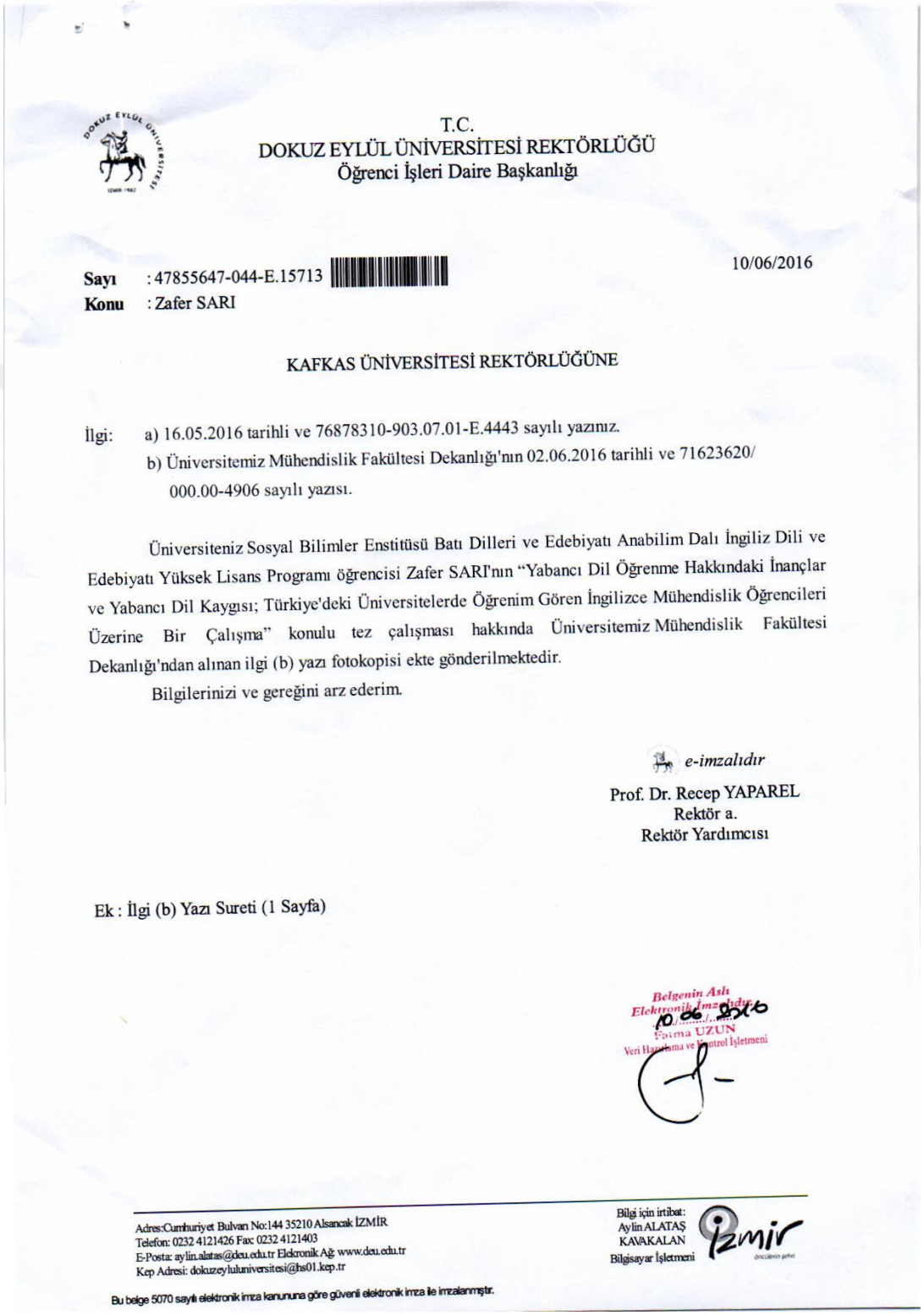
Yeni | Yanıtla | Sil Arşivle Gereksiz | Süpür Taşı Kategoriler ••• Geri al
Re: Beliefs about Language Learning Inventory (BALLI) Ölçeği Kullanım İzni Hk.
SB
Süleyman Başaran <suleyman.basaran@dicle.edu.tr>
23.2.2017 (Per) 09:30
Kime: ZAFER SARI (zafersari26@hotmail.com)
Yanıtla
24.2.2017 09:04 tarihinde yanıt verdiniz.
Merhaba Zafer Bey,
Ölçeği kullanmanızdan ve atıf yapmanız memnuniyet duyarız. Ne yazık ki uzun zaman geçtiğinden ve bu arada bilgisayarım birkaç kez değiştiğinden geçerlik-güvenirlik hesaplamaları ve alt boyutlarla ilgili dosyaları bulamadım. Doktora tezimde bunları ayrıntılı şekilde verdiğimi hatırlıyorum. Teze YÖK tez merkezinden ulaşılabilir.
Başarılar diliyorum,
Süleyman Başaran, PhD

7.11. Appendix K: Permission E-mail of CABAROĞLU





7.12. Appendix L: The Permission Slip of the Engineering Faculty Deanship of Dokuz Eylül University



T.C.
DOKUZ EYLÜL ÜNİVERSİTESİ REKTÖRLÜĞÜ
Öğrenci İşleri Daire Başkanlığı

Sayı : 47855647-044-E.15713
Konu : Zafer SARI

10/06/2016

KAFKAS ÜNİVERSİTESİ REKTÖRLÜĞÜNE

İlgi: a) 16.05.2016 tarihli ve 76878310-903.07.01-E.4443 sayılı yazınız.
b) Üniversitemiz Mühendislik Fakültesi Dekanlığı'nın 02.06.2016 tarihli ve 71623620/ 000.00-4906 sayılı yazısı.

Üniversiteniz Sosyal Bilimler Enstitüsü Batı Dilleri ve Edebiyatı Anabilim Dalı İngiliz Dili ve Edebiyatı Yüksek Lisans Programı öğrencisi Zafer SARI'nın "Yabancı Dil Öğrenme Hakkındaki İnançlar ve Yabancı Dil Kaygısı; Türkiye'deki Üniversitelerde Öğrenim Gören İngilizce Mühendislik Öğrencileri Üzerine Bir Çalışma" konulu tez çalışması hakkında Üniversitemiz Mühendislik Fakültesi Dekanlığı'ndan alınan ilgi (b) yazı fotokopisi ekte gönderilmektedir.

Bilgilerinizi ve gereğini arz ederim.

e-imzalıdır
Prof. Dr. Recep YAPAREL
Rektör a.
Rektör Yardımcısı

Ek : İlgi (b) Yazı Sureti (1 Sayfa)

Belgenin Aslı Elektronik İmzalıdır 10/06/2016
Fatma UZUN
Veri Hazırlama ve Kontrol İşletmeni

Adres:Cumhuriyet Bulvarı No:144 35210 Alsancak İZMİR
Telefon: 0232 4121426 Fax: 0232 4121403
E-Posta: aylin.alatas@deu.edu.tr Elektronik Ağ: www.deu.edu.tr
Kep Adresi: dokuzeyluluniversitesi@hs01.kep.tr

Bilgi için irtibat:
Aylin ALATAŞ KAVAKALAN
Bilgisayar İşletmeni

İzmir

Bu belge 5070 sayılı elektronik imza kanununa göre güvenli elektronik imza ile imzalanmıştır.

T. C.

DOKUZ EYLÜL ÜNİVERSİTESİ
Mühendislik Fakültesi Dekanlığı

T. C.

Sayı : 71623620/000.00- 4806
Konu : Anket Çalışması

02.06.2016

REKTÖRLÜK MAKAMI
(Öğrenci İşleri Daire Başkanlığına)

İlgi :30.05.2016 tarih ve 47855647-302.14-E.14175 sayılı yazısı.

Kafkas Üniversitesi Sosyal Bilimler Enstitüsü yüksek lisans öğrencisi Zafer SARI'nın "Yabancı Dil Öğrenme Hakkındaki İnançlar ve Yabancı Dil Kaygısı: Türkiye'deki Üniversitelerde Öğrenim Gören İngilizce Mühendislik Öğrencileri Üzerine Bir Çalışma" konulu tez çalışması kapsamında anket yapması Dekanlığımızca uygun görülmüştür.

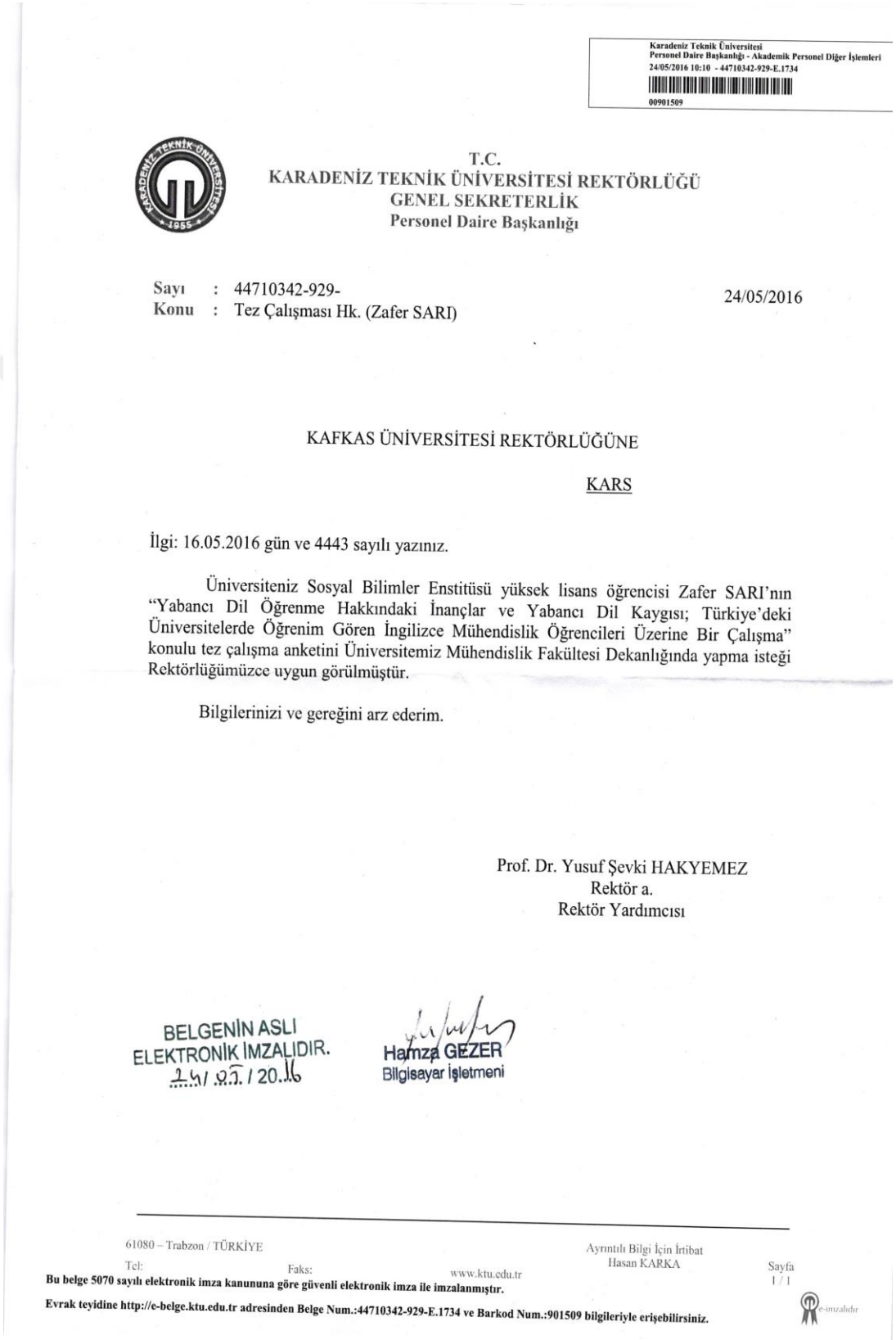
Bilgilerinize ve gereğini arz ederim.

Prof. Dr. Hikmet Hüseyin ÇATAL
Dekan

D.E.Ü.REKTÖRLÜK GELEN NO
06.06.2016 09.17 - 22761

DEÜ Tınaztepe Yerleşkesi 35160 Buca-İZMİR
Tel/ Fax : (232) 301 72 18 – 301 72 10 e-posta: muhendislik@deu.edu.tr
Elektronik Ağ: www.eng.deu.edu.tr Ayrıntılı Bilgi İçin: Yazı-Kurul İşleri

7.13. Appendix M: The Permission Slip of the Engineering Faculty Deanship of Karadeniz Technical University



Karadeniz Teknik Üniversitesi
Personel Daire Başkanlığı - Akademik Personel Diğer İşlemleri
24/05/2016 10:10 - 44710342-929-E.1734
00901509

T.C.
KARADENİZ TEKNİK ÜNİVERSİTESİ REKTÖRLÜĞÜ
GENEL SEKRETERLİK
Personel Daire Başkanlığı

Sayı : 44710342-929-
Konu : Tez Çalışması Hk. (Zafer SARI)

24/05/2016

KAFKAS ÜNİVERSİTESİ REKTÖRLÜĞÜNE

KARS

İlgi: 16.05.2016 gün ve 4443 sayılı yazınız.

Üniversiteniz Sosyal Bilimler Enstitüsü yüksek lisans öğrencisi Zafer SARI'nın "Yabancı Dil Öğrenme Hakkındaki İnançlar ve Yabancı Dil Kaygısı; Türkiye'deki Üniversitelerde Öğrenim Gören İngilizce Mühendislik Öğrencileri Üzerine Bir Çalışma" konulu tez çalışma anketini Üniversitemiz Mühendislik Fakültesi Dekanlığında yapma isteği Rektörlüğümüzce uygun görülmüştür.

Bilgilerinizi ve gereğini arz ederim.

Prof. Dr. Yusuf Şevki HAKYEMEZ
Rektör a.
Rektör Yardımcısı

BELGENİN ASLI
ELEKTRONİK İMZALIDIR.
24/05/2016

Hamza GEZER
Bilgisayar İşletmeni

61080 – Trabzon / TÜRKİYE
Tel: Faks: www.ktu.edu.tr
Ayrıntılı Bilgi İçin İrtibat
Hasan KARKA
Sayfa 1 / 1

Bu belge 5070 sayılı elektronik imza kanununa göre güvenli elektronik imza ile imzalanmıştır.
Evrak teyidine http://e-belge.ktu.edu.tr adresinden Belge Num.:44710342-929-E.1734 ve Barkod Num.:901509 bilgileriyle erişebilirsiniz.

e-imzalıdır

7.14. Appendix N: The Permission Slip of the Engineering Faculty Deanship of Atatürk University

T.C.
ATATÜRK ÜNİVERSİTESİ REKTÖRLÜĞÜ
Öğrenci İşleri Daire Başkanlığı

Sayı : 88179374-302.08.01-E.1600316330 29.12.2016
Konu : Uygulama İzni Zafer SARI

KAFKAS ÜNİVERSİTESİ REKTÖRLÜĞÜNE
(Personel Daire Başkanlığı)

İlgi : 16.05.2016 tarihli ve 76878310-903.07.01-E.4443 sayılı belge.

Üniversiteniz Sosyal Bilimler Enstitüsü Yüksek Lisans Programı öğrencisi Zafer SARI'nın "Yabancı Dil Öğrenme Hakkındaki İnançlar ve Yabancı Dil Kaygısı; Türkiye'deki Üniversitelerde Öğrenim Gören İngilizce Mühendislik Öğrencileri Üzerine Bir Çalışma" konulu tez çalışmasına, uygulama yapma isteğinin uygun görüldüğü ile ilgili Üniversitemiz Mühendislik Fakültesinden alınan 29/12/2016 tarih ve 1600315578 sayılı yazı ekte gönderilmiştir.

Bilgilerinizi ve gereğini arz ederim.

Prof.Dr. Medine GÜLLÜCE
Rektör a.
Rektör Yardımcısı

Ek : 29.12.2016 tarihli 48942413-300-E.1600315578 sayılı belge

Atatürk Üniversitesi Merkez Yerleşkesi 25240 Erzurum
Tel: +90 442 2311601
Elektronik Ağ: http://www.atauni.edu.tr/#!birim=ogrenci-isleri-daire-baskanligi
Kep Adresi: atauni@hs01.kep.tr

Bilgi: Aliye ÖREN
Faks: +90 442 2361026
E-Posta: odaire@atauni.edu.tr

T.C.
ATATÜRK ÜNİVERSİTESİ REKTÖRLÜĞÜ
Mühendislik Fakültesi Dekanlığı
Öğrenci İşleri Bürosu

Sayı : 48942413-300-E.1600315578 29.12.2016
Konu : Anket Çalışması

REKTÖRLÜK MAKAMINA
(Öğrenci İşleri Daire Başkanlığı)

İlgi : 27.12.2016 tarihli ve 88179374-302.08.01-E.1600314008 sayılı belge.

Kafkas Üniversitesi Sosyal Bilimler Enstitüsü Batı Dilleri ve Edebiyatı Anabilim Dalı İngiliz Dili ve Edebiyatı Bilim Dalı Tezli Yüksek Lisans Öğrencisi Zafer SARI'nın "Yabancı Dil Öğrenme Hakkındaki İnançlar ve Yabancı Dil Kaygısı; Türkiye'deki Üniversitelerde Öğrenim Gören İngilizce Mühendislik Öğrencileri Üzerine Bir Çalışma" konulu tez çalışma kapsamında Fakültemiz öğrencilerine yönelik yapmak istediği anket çalışması için izin talebi Dekanlığımızca uygun görülmüştür.

Bilgilerinizi ve gereğini arz ederim.

Prof.Dr. Hikmet ALTUN
Dekan V.

Atatürk Üniversitesi Mühendislik Fakültesi 25240 Erzurum
Tel: +90 442 2314501
Elektronik Ağ: http://www.atauni.edu.tr/#muhendislik-fakultesi
Kep Adresi: atauni@hs01.kep.tr

Bilgi: Recep KUZEY
Faks: +90 442 2314910
E-Posta: muhendis@atauni.edu.tr

7.15. Appendix O: The Permission Slip of the Engineering Faculty Deanship of Fırat University

Evrak Tarih ve Sayısı: 07/03/2017-190172

T.C.

FIRAT ÜNİVERSİTESİ REKTÖRLÜĞÜ

Mühendislik Fakültesi Dekanlığı

Sayı :98893209/402.03.01/
Konu :Tez Çalışması

GENEL SEKRETERLİĞE

İlgi :25/05/2016 tarihli, 146697 sayılı ve "Tez Çalışması" konulu yazı

İlgi yazınız ekindeki Kafkas Üniversitesi Sosyal Bilimler Enstitüsü Batı Dilleri ve Edebiyatı Anabilim Dalı İngilizce Dili ve Edebiyatı Bilim Dalı Tezli Yüksek Lisans öğrencisi Zafer SARI'nın, belirtilen konudaki tez çalışma anketini Fakültemiz Makine Mühendisliği Bölümü'nde yaptığına ilişkin 02.03.2017 tarih ve 190172 sayılı yazısı ilişikte gönderilmiştir.

Bilgileriniz ile gereğini rica ederim.

e-imzalıdır.
Prof.Dr. Ahmet ÖZER
Dekan

EK :
Yazı

Fırat Üniversitesi Rektörlüğü 23119 ELAZIĞ/TÜRKİYE
Tel: 0 (424) 237 00 00
E-Posta: : halklailiskiler@firat.edu.tr
Faks: 0 424 2122717
Elektronik ağ:http://www.firat.edu.tr
Ayrıntılı bilgi için irtibat : Faize TAŞDEMİR

Evrak Tarih ve Sayısı: 07/03/2017-54992

T.C.
FIRAT ÜNİVERSİTESİ REKTÖRLÜĞÜ
Genel Sekreterlik

Sayı :11611387/402.03.01/
Konu :Tez Çalışması (Zafer SARI)

KAFKAS ÜNİVERSİTESİ REKTÖRLÜĞÜNE
KARS

İlgi :Kafkas Üniversitesi Personel Daire Başkanlığı'nın, 16.05.2016 tarih ve E.4443 sayılı yazısı.

Üniversiteniz Sosyal Bilimler Enstitüsü Batı Dilleri ve Edebiyatı Anabilim Dalı İngiliz Dili ve Edebiyatı Bilim Dalı Tezli Yüksek Lisans öğrencisi Zafer SARI, "Yabancı Dil Öğrenme hakkındaki İnançlar ve Yabancı Dil Kaygısı; Türkiye'deki Üniversitelerde Öğrenim Gören İngilizce Mühendislik Öğrencileri Üzerine Bir Çalışma" konulu anket çalışmasını 24.02.2017 cuma günü, Üniversitemiz Mühendislik Fakültesi Makina Mühendisliği Bölümü'nde İngilizce eğitim gören öğrencilere uygulamıştır.

Bilgilerinize arz ederim.

e-imzalıdır
Prof.Dr. Kutbeddin DEMİRDAĞ
Rektör

EKLER :
Yazı (2 Sayfa)

T.C.
KAFKAS ÜNİVERSİTESİ REKTÖRLÜĞÜ
YAZI İŞLERİ ŞUBE MÜDÜRLÜĞÜ
KAYIT NO : 4598
KAYIT TARİHİ : 14.03.17

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Mühendislik Fakültesi Dekanlığı

Makina Mühendisliği Bölümü

Sayı :68961321/402.03.01/

Konu :Bilgi Formları

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Bilgilerinize arz ederim.

e-imzalıdır.
Prof.Dr. İhsan DAĞTEKİN
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ÖZ GEÇMİŞ (CV)

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