ASSESSING A MODEL OF COGNITIVE TEST ANXIETY: THE ROLE OF
RUMINATION, SELF-FORGIVENESS, PERFECTIONISM COGNITIONS AND
COGNITIVE DEFUSION THROUGH THE INDIRECT EFFECT OF
PSYCHOLOGICAL FLEXIBILITY

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This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Doctor of Philosophy.

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ABSTRACT

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The aim of this study was to test a model investigating the role of rumination, self-forgiveness, perfectionism cognitions, and cognitive defusion in predicting cognitive test anxiety through the indirect effect of psychological flexibility. The sample included 715 (351 females and 364 males) students from a state university in Turkey. The data collection instruments used in the study were Demographic Information Form, Cognitive Test Anxiety Scale-Revised, State Self-Forgiveness Scale, Perfectionism Cognitions Inventory, Drexel Defusion Scale, Ruminative Response Scale and Acceptance and Action Questionnaire-II.

In the present study, structural equation modeling (SEM) was conducted to test the hypothesized model. The results of the SEM analysis indicated that the model was significant in predicting cognitive test anxiety of college students. Considering the direct and indirect effects, the results showed that rumination had a positive relationship with cognitive test anxiety through the indirect effect of psychological flexibility. While self-forgiveness was related to psychological flexibility, it did not predict cognitive test anxiety directly and indirectly. Perfectionism cognitions was

positively related to cognitive test anxiety through the indirect effect of psychological flexibility. Finally, cognitive defusion negatively predicted cognitive test anxiety through the indirect effect of psychological flexibility. The hypothesized model accounted for 36% of the variance in cognitive test anxiety. The findings were discussed in the light of relevant literature. In addition to implications for practice, research and recommendations for further research were presented.

Keywords: Cognitive Test Anxiety, Psychological Flexibility, Self-Forgiveness, Perfectionism Cognitions, Cognitive Defusion

ÖZ

BİLİŞSEL SINAV KAYGISI MODELİNİN TEST EDİLMESİ: PSİKOLOJİK ESNEKLİĞİN DOLAYLI ETKİSİ YOLUYLA RUMİNASYON, KENDİNİ AFFETME, MÜKEMMELİYETÇİ DÜŞÜNCELER VE BİLİŞSEL AYRIŞMANIN ROLÜ

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Tez Yöneticisi: Prof. Dr. Oya Yerin Güneri
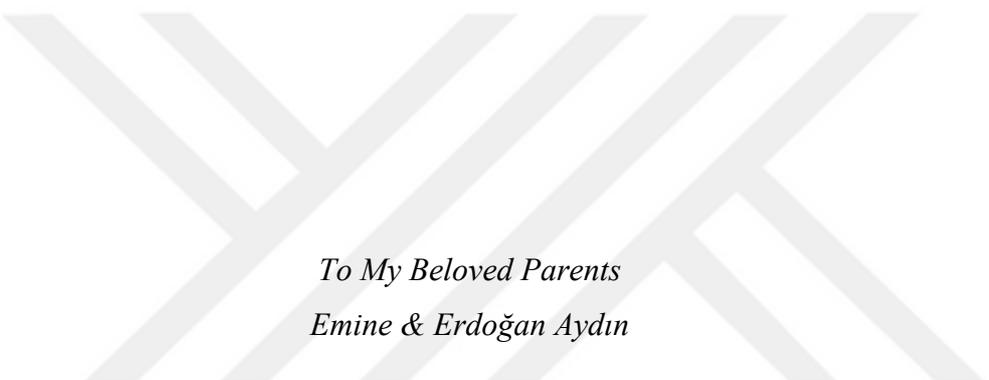
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Bu çalışmanın amacı, psikolojik esnekliğin dolaylı etkisi yoluyla ruminasyon, kendini affetme, mükemmeliyetçi düşünceler ve bilişsel ayrışmanın, bilişsel sınav kaygısını ne ölçüde yordadığını araştıran bir modeli test etmektir. Çalışmanın katılımcılarını Türkiye'deki bir devlet üniversitesinden 715 (351 kadın, 364 erkek) öğrenci oluşturmuştur. Çalışmada ölçme aracı olarak, Kişisel Bilgi Formu, Bilişsel Sınav Kaygısı Ölçeği, Durumsal Kendini Affetme Ölçeği, Mükemmeliyetçi Düşünceler Ölçeği, Drexel Ayrışma Ölçeği, Ruminasyon Ölçeği ve Kabul ve Eylem Formu-II kullanılmıştır.

Bu çalışmada, önerilen modeli test etmek üzere yapısal eşitlik modellemesi (YEM) kullanılmıştır. Yapısal eşitlik modeli sonuçları, üniversite öğrencilerinde bilişsel sınav kaygısını test eden modelin anlamlı olduğunu göstermiştir. Doğrudan ve dolaylı etkilere bakıldığında, sonuçlar psikolojik esnekliğin dolaylı etkisi yoluyla ruminasyonun bilişsel sınav kaygısını olumlu yönde yordadığına işaret etmiştir. Kendini affetme, psikolojik esneklik ile doğrudan ilişkiliyken, bilişsel sınav kaygısını doğrudan ve dolaylı olarak yordamamıştır. Mükemmeliyetçi düşüncelerin,

psikolojik esnekliğin dolaylı etkisi yoluyla bilişsel sınav kaygısıyla anlamlı ve olumlu yönde ilişkili olduğu bulunmuştur. Son olarak, bilişsel ayrışma psikolojik esnekliğin dolaylı etkisi yoluyla bilişsel sınav kaygısını olumsuz yönde yordamıştır. Önerilen model bilişsel sınav kaygısının %36'sını açıklamıştır. Araştırmanın bulguları ilgili alan yazın ışığında tartışılmıştır. Uygulama ve araştırmaya yönelik önerilerle daha sonra yapılacak çalışmalara ilişkin öneriler sunulmuştur.

Anahtar Kelimeler: Bilişsel Sınav Kaygısı, Psikolojik Esneklik, Kendini Affetme, Mükemmeliyetçi Düşünceler, Bilişsel Ayrışma

To My Beloved Parents
Emine & Erdoğan Aydın

ACKNOWLEDGEMENTS

make the circumstances better for me. We've grown together in the past seven years.

Sonsuz minnettar olduğum, hayatımı anlamlandıran güzel insanlar…canım annem ve babam…Benim için hayattaki her güzelliğin örneği, candan öte sevdiğim, huzur bulduğum parçamsınız…sizin sevginiz, inancınız, desteğiniz, sabrınız, şefkatiniz olmasa eksik kalırmışım. Başarılarımla mutlu olduğunuzda hayatta çok şeyi başarmışım hissini yaşadım hep. Mutluluğunuza sebep olduğum her an için şükrediyorum. Ulaştığım her güzelliği size borçluyum ve bu yüzden hepsini size adıyorum… Sabrınız hayata tutunmayı öğretti ve sizinle sevdim hayatı. Heyecanınız beni daima destekledi, bugün bu süreci huzurlu, mutlu ve inanarak geçirdiysem sizin sayenizde. Teşekkür etsem az gelir, sonsuz sevgimi sunuyorum size daima.

Canım abim Alptekin, canım ablam Hatice, ve dünyanın en biricik güzelliği Eymen'im. İyi ki sizlerleyim, tüm heyecanımı benimle paylaştınız, hep vardınız, sonsuz teşekkür ederim. Eymen, doktora sürecinin en zor aşamalarından biri olan yeterlilik sınavında bana en büyük mutluluk sebebi oldun, çok güzel bir duyguymuş seninle buluşmak. Bir tanesin.

To all people whose names are not written here but supported me in any way, thank you all. Writing this thesis required a great effort and without your support, I could not have succeeded.

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INTRODUCTION

> In your pain you find your values, and
> in your values you find your pain.
> (Hayes & Lillis, 2012, p.107)

1.1 Background to the Study

In today's modern world, the importance of having access to a good education and performing well are perceived crucial to reaching highest standards of life (Aydin & Yerin, 1994). As a result of inevitable competition regarding receiving high quality education, most of the educational process concludes with an assessment and evaluation (Brooks, Alshafei, & Taylor, 2015; McDonald, 2001). This has caused the administration of many tests and exams during students' secondary and post-secondary years (Rana & Mahmood, 2010). As Sarason, Davidson, and Lighthall (1960) commented, we have become "a test-conscious, test-giving culture in which the lives of people are in part determined by their test performance" (p. 26).

The frequency of test administration as an evaluation method and importance attached to its results have caused students to develop test anxiety. From the broadest sense, test anxiety can be described as feeling stressed due to the fear of failing a test or being evaluated by others. Within this perspective, Zeidner (1998, p. 17) defined it as "the set of phenomenological, physiological, and behavioral responses that

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accompany concern about possible negative consequences or failure on an exam or similar evaluative situation". Similarly, Suinn (1968) emphasized the disruptive influence of test anxiety on reading and comprehension and defined it as "an inability to think or remember, a feeling of tension, and difficulty in reading and comprehending simple sentences or directions on an examination" (p. 385). Test anxiety can be felt not only during the examination but also before or after the evaluation.

The concept of test anxiety is grounded mostly on cognitive (thoughts about failure), affective (fear or frustration) and behavioral (twiddling or jiggling) aspects (Sarason, 1980). The literature has described test anxiety as incorporating the aspects of worry and emotionality. The worry aspect contains all negative thoughts, perceptions or cognitions related to failure of test while the emotionality aspect is related to feelings and physiological symptoms felt in the body (Akinsola & Nwajei, 2013; Cassady, 2004; Cizek & Burg, 2006). However, as Rana and Mahmood (2010) mentioned, the worry aspect plays more important role than the emotionality in contributing to test anxiety. The worry component of test anxiety also founded a ground for necessity in studying the role of cognitions in test anxiety (Wong, 2008) and emergence of "cognitive test anxiety" concept (Cassady, 2010; Cassady & Johnson, 2002). Cognitive test anxiety is described as the beliefs which have a negative impact on the examinations (Cassady & Finch, 2015) and carrying a high level of worry for test-taking events (Cassady & Johnson, 2002).

The increase in the number of exams and the amount of pressure put on students to succeed (McDonald, 2001) have led to a rise in the level of test anxiety among students (Sarason et al., 1960). This is quite a common problem across different educational levels and educational systems in different countries. According to American Test Anxieties Association (n.d.), nearly ten million students in America have test anxiety. Among these students, approximately 20 % have higher level of test anxiety. On the other side, a current research by Cassady (2010) asserted that test anxiety was common for nearly 40% of students in school settings. A previous study

conducted by Hembree (1988) showed that 20% of college students experience test anxiety.

The commonality of being evaluated via tests leads to feeling test anxiety in all ages of life and all education levels regardless of different disciplines (Gibson, 2014). American Test Anxieties Association (n.d.) also states that test anxiety is an issue in all educational levels from elementary grades through college years. Hembree (1988) studied with students from third grade in elementary to senior level at college. The researcher found that test anxiety decreased the performance of students in different fields from math to language learning; from psychology to science. Although it is shaped with the inclusion of exams in life starting from childhood and lasting through adulthood (Gibson, 2014), test anxiety has become evident in the period of adolescents (Zeidner, 1996).

The early evidence of test anxiety has indicated that there is an increase in anxiety level with age; that is, test anxiety faced in elementary school years is lower than college years because people tend to comprehend the situation of being evaluated in a more critical way while they are getting older regardless of socioeconomic level (Hill & Wigfield, 1984). This increase in the level of anxiety with age makes the topic more crucial to be studied in college years.

In their cross-cultural study, Bodas and Ollendick (2005) reported on the prevalence of test anxiety in different countries from elementary grades to college. The researchers reviewed test anxiety research in various countries. Even though the results were inconsistent to make conclusions regarding comparing the levels of test anxiety in different cultures, Korean men and Iranian women students showed the highest test anxiety among high school students participated in the study (Seipp & Schwarzer, 1996). On the other hand, among college students of different countries, Jordan men and women students had the highest level of test anxiety (Seipp & Schwarzer, 1996). Bodas and Ollendick (2005) concluded that test anxiety has been a common problem of 10-12-year-old children to college students for different

cultures.

Nationwide exams such as university entrance exam and high stakes tests that are used to make important academic decisions about students may also cause high levels of test anxiety. In a study conducted in Turkey, Kavakci, Semiz, Kartal, Dikici, and Kugu (2014) found that nearly half of students (48%) preparing for the university entrance exam had high test anxiety. Similarly, Yıldırım (2007) conducted a study with 844 Turkish students preparing for university entrance exam and concluded that 42% of participants had high levels of test anxiety.

The more pressure students put on themselves, the more they are in need to getting professional help to reduce test anxiety. In this manner, Spielberger (1966) stated that the number of students who were applying for help from college psychological clinic was increasing when it was the examination time in the campus. This claim was based on students' reports that their anxiety was decreasing their performance by blocking their mind. In his book, Spielberger (1966) did not use the word "test anxiety" to describe anxiety provoking features of exams. However, the author provided well-defined explanations for the causes and consequences of anxiety in complicated learning and academic achievement via an experimental study. It was reported that anxious students were misreading or misinterpreting the questions more than non-anxious students and undergraduate students seeking help from clinic mentioned experiencing blocking as an obstacle for academic performance compared to others in the classroom.

The studied variables of test anxiety have been changing from the cognitive aspect to psychological ones. Even though most of the studies have focused on its disturbing influence on academic performance (Chapell et al., 2005; DordiNejad et al., 2011; Putwain, Woods, & Symes, 2010; Rana & Mahmood, 2010; Zeidner, 1998), the literature on test anxiety has shed a light on many related variables so far. Among these variables, cognitive distortions and irrational beliefs were recognized as related to test anxiety (Zeidner, 1998). In a similar vein, Wong (2008) found that negative

automatic thoughts, irrational beliefs or thinking had close relationships with test anxiety for students. In addition to aforementioned variables, Yıldırım (2007) examined depression and test anxiety among students who were preparing for university entrance exam in Turkey. The results of the study indicated that students who had higher depression level had also high test anxiety. In addition, Cizek and Burg (2006) mentioned that students' test anxiety influenced their test taking skills in a negative way. Similarly, the relationship between test anxiety and emotion regulation was examined among first year college students (Davis, DiStefano, & Schutz, 2008). The authors concluded that even though students considered tests as unimportant, they were prone to show high test anxiety during test administration. Furthermore, Eum and Rice (2011) examined cognitive test anxiety and goal orientation of university students and found that cognitive test anxiety was positively related to avoidance goal orientations in which avoidance goal orientations were linked to low academic performance. Besides, the relationship between attachment and self-esteem and test anxiety was examined among adolescents and college students (Dan, Bar Ilan, & Kurman, 2014). The findings of the study revealed that anxious attachment was positively associated with test anxiety for college students and self-esteem mostly played the role of mediator in this relationship for high school students.

In the literature, perfectionism cognitions were described as having high standards and the attempts to be perfect (Flett, Hewitt, Blankstein, & Gray, 1998). Perfectionism cognitions are also found to be positively related to test anxiety. Eum and Rice (2011) stated that maladaptive perfectionism was positively associated with cognitive test anxiety because the individuals set high standards for themselves by having perfectionistic thoughts and these resulted in high anxiety during exams. That is, maladaptive perfectionism explained the variance in test anxiety and the positive relationship indicated that the more students had high cognitive test anxiety, the more they had displayed perfectionism. Similarly, Stoeber, Feast, and Hayward (2009) mentioned a high level of test anxiety for students who had socially prescribed perfectionism. In a similar vein, Weiner and Carton (2012) concluded that

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college students who had perfectionism based on others evaluations had higher test anxiety. In line with this research, Arana and Furlan (2016) ascertained that the test anxiety of university students increased with maladaptive perfectionism.

Rumination has been defined as overthinking about negative past experiences (Grant & Beck, 2010). Brown et al. (2011) stated that overthinking about exam performance, which was a feature of rumination, was positively correlated with test anxiety. Similarly, Grant and Beck (2010) showed that high test anxious undergraduate student had the tendency to ruminate considering exam situation. In a current study, Yu, Chen, Liu, Yu, and Zhao (2015) found that as rumination levels increased within a sample of undergraduate students, anxiety levels also increased.

Cognitive defusion has also been associated with cognitive test anxiety. Cognitive defusion was described as putting distance between thoughts and self; and considering thoughts as only thoughts (Hayes & Lillis, 2012). For test anxious students, using cognitive defusion interventions can reduce test anxiety since cognitive defusion will help taking committed action instead of being stuck in them. As Roberts and Sedley (2016) indicated, in order to deal with an anxiety in general, cognitive defusion was among the most fundamental methods. In this regard, Masuda et al. (2010) and Pilecki and Mckay (2012) mentioned that cognitive defusion might be a productive way for working with anxiety and negative thoughts. In an experimental study, Brown et al. (2011) studied cognitive defusion on the test anxiety of college students and obtained the results that cognitive defusion can be used as a valuable strategy in group activities designed for engaging in test anxiety.

Self-forgiveness is partially a cognitive process (Zettle, Barner, & Gird, 2009) based on evaluating the events from a different perspective and relieving the self (Enright, 1996). It includes self-compassion and accepting self. The literature indicated an association between self-forgiveness and anxiety in a way that people who can forgive themselves carry less anxious thoughts (Berry, Worthington, Parrott, O'Connor, & Wade, 2001; Thompson et al., 2005). Therefore, forgiving self for

previous anxious evaluation cases might decrease test anxious thoughts for the future performance. However, there was insufficient number of research examining the role of self-forgiveness in test anxiety. That is, studying the role of self-forgiveness in explaining test anxiety has not taken much attention of researchers so far. As Bugay (2010) stated, self-forgiveness was not studied extensively in Turkish literature. Additionally, Menahem and Love (2013) suggested to use mindfulness techniques, which are among the steps in Acceptance and Commitment Therapy, to improve self-forgiveness which includes accepting oneself.

Various theoretical perspectives have provided explanations for test anxiety including Cognitive-Attentional Models (Sarason, 1980); Drive Model (Mandler & Sarason, 1952); Information Processing Model (Naveh-Benjamin, McKeachie, Lin, & Holinger, 1981); Self-regulation Model (Carver & Scheier, 1981); Self-worth Model (Covington, 1984); and Transactional Model (Spielberger & Vagg, 1995). Among different theories, Cognitive-Attentional Model has given broader explanations in describing the problem, background of the phenomenon and possible solutions. Test anxiety was defined based on the difference between high and low anxious students' attention level towards task-based cases. According to the theory, low anxious students had high attention for the task and they did not face with irrelevant thoughts.

A recent theory named Acceptance and Commitment Therapy (ACT) has broadened the perspective of cognitive-behavior theory. The ACT is not grounded on the basis of finding the solutions for the problems but accepting the situation by willingness without taking reaction against it through psychological flexibility. The process also includes separating actions and self from each other in a way that self is not a part of event. ACT stands on the ground of achieving psychological flexibility which means experiencing emotions and behaviors as they are without any attempt to change them by being conscious in the present moment, defined values, acceptance, commitment, defusion and self as context (Hayes & Lillis, 2012). ACT is based on finding the values, taking committed action towards values and experiencing the emotions

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willingly as a way of reaching those values.

Considering the new perspective and interventions of Acceptance and Commitment Theory, many psychological problems have been investigated under the viewpoint of ACT from depression (Lappalainen et al., 2014) to stress (Daltry, 2015). Several research has proved that ACT is the key predictor of anxiety (Bluett, Homan, Morrison, Levin, & Twohig, 2014; Sabourin, 2013; Sharp, 2012; Swain, Hancock, Dixon, Koo, & Bowman, 2013; Swain, Hancock, Hainsworth, & Bowman, 2013). Even though DSM-V includes anxiety as a diagnosis, test anxiety does not have a place as a major topic, nor is it under the category of another disorder in DSM-V. However, a number of critical views have indicated that it should be under Social Anxiety Disorder, Generalized Anxiety Disorder or Obsessive Compulsive Disorder. Attributing importance to this manifestation, Bögels et al. (2010) advocated that test anxiety should be stated under the non-generalized social phobia due to the fear of being evaluated. Among the other factors, social humiliation was the key aspect in test anxiety in the same way as it was in social anxiety disorder. In this sense, Brown et al. (2011) suggested that test anxiety should also be examined with the ACT perspective and there could be appropriate interventions of ACT for dealing with test anxiety. However, the current literature lacks research about test anxiety from the ACT perspective.

From the ACT perspective, it is suggested that dealing with test anxiety includes accepting and staying with the emotion in the present moment by observing one's self and willingness to take action according to values. This new perspective does not aim at avoiding emotions, but accepting emotions with all of its parts. The way of ACT is not to try to find solutions to get rid of anxious feelings but to understand the emotions deeply. By increasing psychological flexibility, the individual opens the ways to experience the emotions because the attempt to escape from the emotion actually puts the feeling on the surface still.

There is only limited number of studies examining test anxiety from ACT pespective (e.g. Brown et al., 2011) because ACT is an emerging approach as a third way of cognitive behavior therapy. Besides, cognitive test anxiety has not been studied in a broad sense as it is a brand-new aspect of test anxiety issue; that is, cognitive aspect of test anxiety has been studied recently as a separate aspect. Therefore, it will be a valuable contribution to extend the concept and it will be crucial to study the related factors of cognitive test anxiety, which will advance the literature on cognitive test anxiety from a different theoretical perspective. In this regard, in the current study, rumination, self-forgiveness, perfectionism cognitions, and cognitive defusion were included as predictors of cognitive test anxiety and they were also highly associated with psychological flexibility, which led the researcher to include psychological flexibility as a meditor variable to the present study.

In conclusion, the literature provides a great amount of information related to the frequency and importance of test anxiety issue in college years. The cognitive side of test anxiety have been influenced by several variables including rumination, perfectionism, irrational beliefs, etc. Even though different theories have extended the view of test anxiety, ACT proposed a new perspective by increasing psychological flexibility. Changing the perspective from fighting against test anxiety to the acceptance of the situation and changing the relation with the thoughts might provide valuable information to the current literature. Testing a model for cognitive test anxiety with a sample of college students, namely preparatory school students, might improve the literature in terms of interventions to be used in college context because dealing with test anxiety problem early in college years can pave the way for higher academic and social satisfaction.

1.2 The Hypothesized Model in the Current Study

The above-mentioned research lays the foundations of the current study by examining several cognitive variables (rumination, self-forgiveness, perfectionism cognitions, cognitive defusion) possibly related to cognitive test anxiety within the perspective of ACT which aims to increase psychological flexibility (see the

hypothesized model in Figure 1.1). The study aimed at investigating cognitive test anxiety by the role of indirect effect of psychological flexibility.
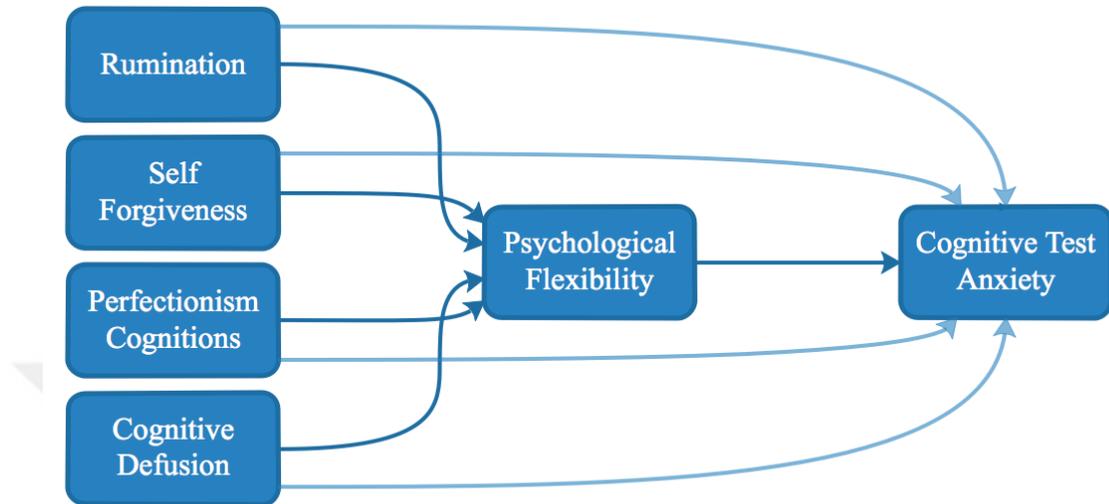
Figure 1.1 - The Hypothesized Model

1.3 Purpose of the Study

The purpose of the present study was to test a model explaining the role of rumination, self-forgiveness, perfectionism cognitions and cognitive defusion in predicting cognitive test anxiety through the indirect effect of psychological flexibility.

1.4 Research Questions

The main research question in the current study was:

- To what extent do rumination, self-forgiveness, perfectionism cognitions and cognitive defusion predict cognitive test anxiety through the indirect effect of psychological flexibility?

With this purpose, further sub-research questions based on the proposed model were detailed below:

- To what extent do psychological flexibility have an indirect effect on the relationship between rumination and cognitive test anxiety?
- To what extent do psychological flexibility have an indirect effect on the relationship between self-forgiveness and cognitive test anxiety?
- To what extent do psychological flexibility have an indirect effect on the relationship between perfectionism cognitions and cognitive test anxiety?
- To what extent do psychological flexibility have an indirect effect on the relationship between cognitive defusion and cognitive test anxiety?
- To what extent does rumination directly predict cognitive test anxiety?
- To what extent does self-forgiveness directly predict cognitive test anxiety?
- To what extent do perfectionism cognitions directly predict cognitive test anxiety?
- To what extent does cognitive defusion directly predict cognitive test anxiety?
- To what extent does psychological flexibility directly predict cognitive test anxiety?

1.5 Significance of the Study

In an educational system where tests are one of the most common evaluation methods for measuring students' learning, it is highly possible to find many students suffering from test anxiety. Considering the findings related to increase in test anxiety with age (DordiNejad et al., 2011; Hill & Wigfield, 1984) and the higher levels of test anxiety among college students compared to their high school counterparts (Dan et al., 2014), the test anxiety of college students needs to be examined from various theoretical perspectives.

Considering the commonality of test anxiety in the competitive educational world, it can be difficult for college students to handle the challenges of academic life while suffering from anxiety at the same time. College years carry a high importance in shaping the lives of individuals and they are crucial for the future development and well-being of individuals. Thus, developing interventions and arranging college environment to respond academic, personal and social needs of students' are under the responsibility of higher education institutions. If students who are facing with the challenges of college life are equipped with effective coping mechanisms, it will contribute to have individuals who will be ready to cope with general challenges of life in future.

During college years, students cope with many issues. As the recent study with college students indicated, higher levels of test anxiety is very common among students (Valure, 2015). As test anxiety is a near-universal problem (e.g. Cassady, Mohammed, & Mathieu, 2004; Cassady, 2004b; Furlan, Cassady, & Pérez, 2009; Hodapp & Benson, 1997), studies that investigate the correlates of test anxiety can provide an insight for further test anxiety prevention studies. Investigating the predictors of test anxiety can enlighten the further experimental studies in terms of including associated variables to detect coping strategies of test anxiety problem.

Turkish culture holds college graduation in high regard (Aydin & Yerin, 1994). Students' future has been shaped via their performance, which is the central point of attached importance to exams. Therefore, there are a great number of tests administered during one's time in the Turkish educational system, leading up to enrollment in college (Aydin & Yerin, 1994), before which they must take the university entrance exam that is mandatory for entrance into and completion of a college degree program. Güneri (2003) ascertained that test anxiety increased with age, which supported the finding that high school students were more test anxious compared to elementary students. This conclusion leads researchers think that high school students who are candidates of college life might start their college life by bringing previous test-anxious feeling with them. Thus, it is vital to study the issue of

test anxiety among university students in Turkey in order to support the psychological health and educational achievement of students surviving within this competitive education system.

Previous research in Turkey emphasized the test anxiety of secondary and high school students before the nationwide college entrance exam. The studies related to test anxiety among college students have also been limited in Turkey (Denizli, 2004). College students found to experience higher levels of anxiety than high school students in terms of the cognitive domain (Dan et al., 2014). It is also vital to mention that students who have struggled in test anxiety conditions earlier in their education process could carry this anxiety to college years. Considering the effect of previous test experience on further test anxiety, it is important to study test anxiety in the beginning of college years. Thus, the current study is significant in terms of examining test anxiety among college students who are in the English language preparatory school of a highly ranked university in Turkey and improving their language skills to be ready for an undergraduate education which will be held in English.

It should also be noted that college students in English Language Preparatory Schools might face test anxiety together with language learning anxiety because passing language proficiency exam is a mandatory to start undergraduate study in department. Furthermore, the students who participated in the study have a successful academic background as they have entered one of the top universities in Turkey. That is, the students are already high achievers. Hence, their English language proficiency can be low. Students may also be prone to perfectionistic thoughts during the early years of university due to high academic demands (Pirbaglou, 2013). Additionally, Chapell et al. (2005) indicated a higher mean score of test anxiety in undergraduate students compared to graduate students, which was among the cardinal points of investigating college students in this study. Therefore, the current study is significant in working with college students who will take the same English Language Proficiency exam. In other words, their anxiety is related to

the "English Proficiency Exam".

The reviewed literature has shown that test anxiety and other related variables have been studied from several aspects (Dora, 2012). However, most of these studies were based on emotional and cognitive aspects together. In this regard, Berger (2012) pointed to the limited number of studies focusing on an extensive model for cognitive factors of test anxiety. In other words, research about only the cognitive aspect of test anxiety has been lacking in the field. Investigating the predictors of cognitive test anxiety as well as from a different theoretical perspective might contribute a valuable insight to the current literature. Based on this insight, the present study is believed to provide a worthwhile vision for practitioners on the point of developing interventions to deal with the cognitive aspect of test anxiety as a separate concept. As Wong (2008) mentioned in a related study, behavioral methods have been used commonly in treatment of test anxiety; however, these methods have penetrated the emotional aspect of test anxiety whereas cognitive component of test anxiety has been paid less attention. Therefore, this study is a way of bringing the cognitive aspect out into the open in research studies. Additionally, in dealing with test anxiety, research about safety behaviors has been lacking compared to other anxiety disorders (Knoll, 2012). Therefore, studying cognitive test anxiety can improve the literature to reduce the effects of anxiety via some safety behaviors.

Previous studies have indicated that psychological flexibility has been influenced by rumination, self-forgiveness, perfectionism cognitions and cognitive defusion. What is more, psychological flexibility has been highly related with anxiety and played the role of mediator between various psychological variables. However, studies about the indirect effect of psychological flexibility have been lacking in terms of the cognitive test anxiety aspect in the literature. These variables (rumination, self-forgiveness, perfectionism cognitions and cognitive defusion) were expected to be highly associated with psychological flexibility, which actually could have an indirect effect between cognitive test anxiety and psychological flexibility. In this sense, the purpose of this study was to examine the predictive role of rumination,

self-forgiveness, perfectionism cognitions and cognitive defusion on cognitive test anxiety when psychological flexibility had an indirect effect on this relationship. Because psychological flexibility was proposed to be a mechanism by which rumination, self-forgiveness and cognitive defusion enable participants a change in their cognitive test anxiety.

Considering the main aim of the study, the ACT was taken as the theoretical base of the current study and the predictors were chosen among the variables related to psychological flexibility, which was the core of ACT. There is an experimental study investigating whether the difference between acceptance-based treatment or cognitive behavior treatment was better in dealing with test anxiety. It was found that acceptance-based interventions were more powerful than cognitive-behavior methods (Brown et al., 2011). However, the current study that examines the predictors of cognitive test anxiety within the ACT framework; that is a rather new contribution to literature. The increase in correlational studies might also give evidence and encouragement for further experimental studies. Overall, considering the limited amount of research, this study will fill an important gap in the current literature.

The study is also significant in terms of examining cognitive test anxiety of college students from the ACT perspective. The ACT has been studied with various samples, including some with children and some with adults (Hayes & Lillis, 2012). Even though the ACT has been studied with the sample of college students for different psychological problems like social anxiety (Block & Wulfert, 2000) and public speaking anxiety (Block, 2002), there is a limited number of research investigating test anxiety with variables from the ACT perspective among college students (Brown et al., 2011).

Another crucial point that is devoted to the significance of the present study is that the findings will reveal valuable contributions to the current literature in terms of conducting the study in a different culture as suggested by the foremost studies in the

field. Based on the critical aspect of cultural context, this study will make noteworthy contributions to Turkish literature since it will become among one of the first studies focused on cognitive test anxiety and uses ACT as a theoretical framework while selecting study variables. Additionally, there have been several studies which have found psychological flexibility as the mediator variable between mindfulness and worry, depression and anxiety (e.g. Ruiz, 2014; White et al., 2013). Hence, none of these studies has focused on the indirect effect of psychological flexibility on cognitive test anxiety.

This study is likely to provide helpful vision for researchers and practitioners working with college students, especially for preparatory school students who have started their college life and faced with a mandatory English Proficiency exam. They can benefit from the results in a way that they are aware of related cognitive factors predicting test anxiety. Current literature has promoted various practices and strategies in struggling with test anxiety. However, the findings of this study will serve new perspectives for practitioners by taking rumination, self-forgiveness, perfectionism cognitions and cognitive defusion into consideration. Additionally, the ACT has been studied with a large number of participants from different ages and it is suggested that the results can be used in future studies aimed to design intervention for test anxiety. In fact, this study is a step by contributing an insight into the predictors of test anxiety for a specific age group of sample, namely preparatory school students.

Finally, within the scope of this study, three instruments cognitive defusion scale, self-forgiveness scale and perfectionism cognitions inventory were adapted into Turkish and the adapted instruments could be used in future studies.

1.6 Definition of Terms

In this part of the study, the definitions of key terms were presented in order to help readers understand the results and the overall study.

Cognitive Test Anxiety is interpreted as the high incidence of worry for a test-taking situation. With a broader definition, cognitive test anxiety "is associated with a broader range of behaviors and beliefs that impact the learning and testing experiences for students" (Cassady & Finch, 2015, p. 14). Additionally, it is defined as having self-evaluative statements before, during and after the test-taking situation (Cassady & Johnson, 2002).

Acceptance and Commitment Therapy is defined as "a psychological intervention based on modern behavioral psychology, including the relational frame theory that applies mindfulness and acceptance processes, along with commitment and behavior change processes, to the creation of psychological flexibility" (Hayes & Lillis, 2012, p. 137).

Psychological Flexibility is achieved by applying the six core concepts of the Acceptance and Commitment Theory (Hayes & Lillis, 2012) including acceptance, cognitive defusion, self, committed action, values and attention to present moment. The state of not achieving psychological flexibility is described as psychological inflexibility.

Rumination is defined as "a recurrent and excessive focus on perceived negative aspects of a past event" (Grant & Beck, 2010, p. 480). Rumination does not include an attempt to find solutions for the problem.

Self-forgiveness is described as "willingness to abandon self-resentment in the face of one's own acknowledged objective wrong, while fostering compassion, generosity and love toward oneself" (Enright, 1996, p. 115). It means showing compassion and worth towards oneself despite behaving in a wrong way.

Perfectionism Cognitions are defined as the automatic thoughts that are based on concerns and strives to be a perfect one (Flett et al., 1998).

Cognitive Defusion is defined as altering the relation of thoughts instead of being overwhelmed with them. It is a way of putting distance between thoughts and the self (Hayes & Lillis, 2012). Cognitive defusion is a core concept for psychological flexibility in Acceptance and Commitment Theory.

CHAPTER 2

LITERATURE REVIEW

This chapter presents the review of literature in relation to the purpose of the study. In the first section, the definition and theoretical aspects of test anxiety is explained. The next section includes the presentation of detailed information about the theoretical bases of the study. The third section presents the variables of the current study which are rumination, self-forgiveness, perfectionism cognitions and cognitive defusion. The chapter finishes with the summary of the chapter.

2.1 Test Anxiety and Cognitive Test Anxiety

At first glance, anxiety is among the most common problems in life. Grinker (1966, p. 133) declared that "All of us are anxiety-prone; the problem is to find out what makes our proneness actual". In 1970's, test anxiety is regarded as a concept originated from anxiety (Spielberger, 1972) and considered as a universal problem in college (Spielberger, Anton, & Bedell, 1976). Regardless of the course of time, test anxiety is still a tremendous continual problem of college students (Akinsola & Nwajei, 2013; Dodeen, 2009) and students in all educational levels (Gibson, 2014).

Being anxious about academic life is quite acceptable and sometimes a minimal amount of anxiety facilitates learning (Cizek & Burg, 2006). However, when the situation addresses to anxiety while taking a test and experiencing difficulty in remembering the correct knowledge and performing accordingly, then it can be called as "test anxiety". Test anxiety creates problems for the individuals because the

internal reason of anxiety comes from test condition (Gibson, 2014). In a similar sense, Spielberger (1966) marked the nature of exam, which could differ in complexity regarding different disciplines, as an important factor of anxiety.

Test anxiety was defined by Suinn (1968) as "an inability to think or remember, a feeling of tension, and difficulty in reading and comprehending simple sentences or directions on an examination" (p. 385). Suinn (1968) emphasized its disruptive influence on reading and comprehension. Later, in 1980s, test anxiety was described as giving cognitive, affective and behavioral reactions due to fear of failure in a test (Sarason, 1980). Another definition was provided by Dusek (1980, p. 88) as "an unpleasant feeling or emotional state that has physiological and behavioral concomitants, and that is experienced in formal testing or other evaluative situations.". In addition to aforementioned definitions, Rana and Mahmood (2010) stress its psychological aspect which can in turn influence the future performance of the individual. In his book, Spielberger (1980) did not use the word "test anxiety" to describe anxiety provoking features of exams, but reported that anxious students were misreading or misinterpreting the questions more than non-anxious students.

The concept of test anxiety has been classified as causing stress, tension and anger by blocking the knowledge of person (Cizek & Burg, 2006). Akinsola and Nwajei (2013, p. 18) remarks that "Examination as a word evokes varying degrees of anxiety in students depending on the importance of the examination, perceived difficulty level of the subject, and degree of preparedness for the examination". In conceptual analysis of test anxiety, Gibson (2014) mentioned the antecedents and consequences of test anxiety. Knowing that there would be an exam and any kind of perception of failure in the exam were the antecedents considered as the prerequisites of test anxiety. Moreover, the researcher stated the consequences of test anxiety as low exam grades, failure of exams and low self-esteem for achieving a degree.

Test anxiety comprises three components: cognitive, affective and behavioral (Zeidner, 1998). While having overwhelming thoughts focused on self-performance

constitute *cognitive* component and resulting in problems in comprehension and understanding, physiological signs including tightness, shaking or sweating form the *affective* component. Thirdly, when the test anxious individual has deficient study skills and keep them away from work related responsibilities, then *behavioral* component becomes apparent. However, these three components have been grouped under two fundamental dimensions as worry and emotionality. In case of feeling test anxiety, negative perceptions, thoughts as well as physiological symptoms like anger, sweating, nausea, heart-throb etc. might occur. Negative thoughts generate worry and physiological symptoms form emotionality. The level of indications might change on individual bases; nevertheless, the paramount domains of test anxiety including cognitions, behaviors, physiology and psychology label it as worth studying. (Akinsola & Nwajei, 2013; Brooks et al., 2015).

Cassady (2010) interpreted the high incidence of worry aspect as cognitive test anxiety. To put it more explicitly, cognitive test anxiety "is associated with a broader range of behaviors and beliefs that impact the learning and testing experiences for students" (Cassady & Finch, 2015, p. 14). When the worry side is taken as a separate aspect excluding other dimensions, this type of anxiety includes only cognitive process. In fact, the emphasis on cognitive aspect is due to cognitions which can function as subjective interpretations of actions, events, emotions and all the environment for humans. The cognitive aspect of test anxiety includes four fundamental dimensions as regarding evaluation as something threatening; lack of study skills; tendency to be interrupted during both practicing/studying before exam and at the time of tests; and finally lack of motivation leading to prevention from studying, experiencing failure and getting used to it, and inability to overcome the problem (Cassady, 2004; Cassady & Finch, 2015; Cassady & Johnson, 2002; Davis et al., 2008; Zeidner, 1998). Cognitive aspect of test anxiety has taken the attention of researchers more than emotionality aspect. Because there is a close relationship between cognitive process and test performance (Cassady & Finch, 2015). Additionally, there is a close relationship between cognitive process and worry aspect as the fundamental constitute of cognitive test anxiety (Eum & Rice, 2011).

This emphasis has especially rooted in the explanation that individuals with test anxiety showed insufficiency in cognitive practices like understanding, organizing or envisioning (Cassady & Finch, 2015) and this has resulted in failure in academic performance.

Cognitive aspect of test anxiety incorporates the worry thoughts and concerns related to failure during an evaluation process. According to Bedell and Marlowe (1995), the cognitive domain possessed the most considerable impact in understanding the essence of test anxiety. Similarly, Rana and Mahmood (2010) stated that cognitive domain produced more test anxiety compared to affective domain. Also, Hembree (1988) confirmed that the reason of less academic performance was due to cognitive side of test anxiety. In the light of all these information, Cassady and Johnson (2002) argued that the simple word "worry" did not define test anxiety in all dimensions; thus, they offered to use "cognitive test anxiety" which consisted the whole cognitions, self-evaluative statements before during and after the test taking situation. They addressed the ingredients of individuals having cognitive test anxiety as overwhelming self-evaluation about performance, making comparisons between self and colleagues, worry about the results of failure, less self-confidence for performing well, thinking about family reactions

The fact that test anxiety has been described under the umbrella title of anxiety, it has included the same concepts with anxiety but still not a diagnosis. In this manner, the similarities between concepts have taken the attention of researchers so as to broaden the paths from test anxiety to anxiety. The concept of anxiety is categorized under the headings of either state or trait anxiety. The state anxiety refers to being anxious in specific situations which create tension for the individual (Grinker, 1966). In other words, state anxiety comes to the surface and goes as a temporal factor. On the other hand, trait anxiety is defined as the characteristics of the person in which the concepts of tension, uneasiness or weaknesses are categorized as chronic (Grinker, 1966). The trait anxiety is associated with permanent personality component. That is, the type of trait anxiety covers the characteristics of an individual rather than a

temporary case. Spielberger (1980) pointed to the fact that an individual had the tendency of having high level of state anxiety on condition that the individual had trait anxiety. In the meanwhile, the difference between trait and state anxiety has been reflected into the measurements about anxiety, which resulted in state anxiety scales and trait anxiety scales.

Under the light of this information, test anxiety is mostly categorized under state anxiety which emerges as a reply for a stressful situation (Cassady, 2010). In a state of test anxiety, a person feels anxious in all test taking situations in which he/she attaches a critical consequence. Within this view, the trait anxiety is not completely explaining the whole concept of test anxiety due to the fact that test anxiety cannot derive from a personality character. It is acceptable that the individual has an anxious character or any anxiety disorder in general and might reflect his/her anxiety into exams. However, it is not necessarily required to have anxiety as a permanent personality character to feel anxious about exams. It might just a response for exams based on the importance and value of the tests. Concurrently, most of the literature has been constructed upon the view of situation specific anxiety when test anxiety is interpreted (Cassady & Johnson, 2002). Cassady and Johnson (2002) had a clear view of situation that test anxiety was categorized under state anxiety but was not a process just felt during the examination, yet it could be revealed before the testing procedure. Although the findings of Berger's (2012) study showed that test anxiety was associated with trait anxiety rather than state anxiety, the researcher discussed the results under the light of permanent and universal applicability of test anxiety as a trait hidden in a person.

On the other hand, Cassady (2004) pointed that test anxiety was not a process felt only during the examination. He argued that individuals with high test anxiety experience the anxiety both in time of testing and preparation process by carrying all negative thoughts and emotions in mind. Thus, cognitive test anxiety was considered almost as trait-like due to enduring with the person for some time and did not only occur at the time of the study, but before and after testing time (Cassady, 2004). This

finding improved the literature in a great sense that professionals working on test anxiety should also take the process before and after testing into consideration.

Despite the fact that DSM-V does not include test anxiety as a diagnosis, Bögels et al. (2010) suggest that the description made for the social phobia carries nearly the same features with test anxiety and should be included under social phobia. Consequently, the researchers argue that test anxiety can be included as a part of non-generalized social phobia because of the fear of being evaluated by others and taking a test can be given as an example to the aforementioned part (DSM-V). Sarason (1986), who had a great number of studies on test anxiety, stated the relationship between anxiety and test anxiety as "In some ways, the study of test anxiety might be taken as a prototype for anxiety research because the evaluation role of the test is its most important aspect." (p. 22). It is very common to include test anxiety under the general topic of anxiety. Among the early studies about anxiety, Fischer (1970) came up with a deep explanation about theories of anxiety within the perspectives covering from Freudian to Existentialism. In his well-expositional book, Fischer extended his explanations about everyday anxiety by giving the case of an individual feeling anxious when thinking about exams. The broad description about the case in the book might reflect the severity of test anxiety problem even if it was stated not as a diagnosis but under the concept of anxiety as a diagnosis. Fischer mentioned that anxiety for tests might be associated with one's self-respect, future or college graduation which were the crucial aspects within one's life in the following lines:

> "While the must to be actualized involves a doing, a passing of an exam, a graduating from college, the meaning of this deed refers explicitly to the individual's being. In other words, it is a deed that expresses and makes possible a certain way of living, a certain identity, a certain world. It is a doing in the service of being. The individual must pass the exam and graduate in order that he may continue to be who he already is." (Fischer, 1970, p. 125)

2.2 The Test Anxiety Constructs and Related Studies

The background, effects and consequences of test anxiety has been studied since 1950s (Sarason, 1959). Research indicates that the test taker detects "exams" as evaluation and the result of being evaluated makes him/her brings failure decisions into mind, feeling of worry, physical responses like perspiration, queasiness etc. and personal conclusions about himself/herself (Spielberger et al., 1976). The results of anxiety might be reflected in thoughts, behaviors or emotions (Sarason, 1980). Even though the reviewed literature mostly pointed to the negative side of test anxiety, especially its effect over the academic success of students (Brooks et al., 2015; Eum & Rice, 2011; Hembree, 1988), sometimes it can be used as a means of protecting self psychologically (Thompson, 2013). It has been discovered that students are hiding themselves under the excuses of test anxiety instead of facing the reality of being less studied or incapability. Thompson (2013) also asserted that nearly twenty out of every one hundred undergraduate students had test anxiety even though only half of them got low grades. This interesting finding also pointed to the students' tendency to call them as test anxious. Notwithstanding, a high amount of test anxiety was totally classified as debilitating and most of the literature has based on its debilitating effect (Aydin & Yerin, 1994; Cassady, 2010; Sarason, 1980; Zeidner, 1998).

As a matter of fact, the literature highlighted the influence of practice before the exam on recalling the information and the lack of enough preparing caused anxiety for students (Spielberger, 1966). Its relationship with the academic performance and possible related variables of test anxiety has been introduced to the field with a broad range of studies (Spielberger et al., 1976) and currently, studies have still been conducted to examine the nature and treatment of test anxiety (Akinsola & Nwajei, 2013).

Student achievement has been affected by various kinds of factors from study skills to test anxiety as the fundamental indicators of success for some students' perceptions. Examinations which are considered as an indication of success are

regarded as a critical aspect in education settings. Consequently, this attached importance puts it in a demanding situation where other influencer of test anxiety should be discovered and eliminated to reduce its disastrous effects. Studies have found that test anxiety has decreased academic performance, test performance, concentration level and psychological health of students as well as it has caused problems in making sense of questions and key words (Dodeen, 2009; Hembree, 1988; Zeidner, 1998). Similarly, there was found a negative relationship between test anxiety and academic success of students as a result of possible responses of anxiety (Chapell et al., 2005; Zeidner, 1998).

What causes test anxiety or whether test anxiety decreases academic performance or being less successful causes test anxiety is a long debate (Hill & Wigfield, 1984). However, early collections of family expectations over students' performance or hesitant concerns related to unsuccessfulness might create test anxiety for students and also self-perceptions developed as a result of formal and frequent evaluation might cause test anxiety (Sarason et al., 1960). In order to discover the causality within test anxiety, Hill and Wigfield (1984) performed a study with students. In their research, two different conditions under which students were tested in regard to knowledge and anxiety were created. The result of their anxiety level towards two conditions indicated that the students had the knowledge about the topic but their anxiety was causing them to fail. That is, the reason of failure was not related to information but having stress about evaluation.

As test anxiety has a variety of cognitive aspects, other factors especially related with cognitive side should be investigated as a part of test anxiety. For instance, Hembree (1988) found that test anxious people were having low level of self-acceptance. This finding was impressive that test anxiety might be a destructive factor for psychology of people. Likewise, as worry domain of test anxiety includes rumination, it can also be a factor for test anxiety. In addition, Cassady and Johnson (2002) argues that individuals might compare their performance with friends in regard to show a better performance. Therefore, perfectionism can also be a part of test anxiety subject.

Penney, Miedema, and Mazmanian (2015) implied from their studies that test anxiety should be taken into account in studies examining psychological variables and intelligence.

In a research with three hundred and twenty college students representing minority ethnic groups, (Berger, 2012) investigated cognitive vulnerabilities of test anxiety with regard to antecedents behind test anxiety. The researcher not only pointed to the lack of test anxiety studies from cognitive approaches but also to the various cognitive variables related to test anxiety. The findings indicated that test anxiety was significantly associated with trait anxiety, uncertainty intolerance and anxiety sensitivity among cognitive constructs.

Even though there are a great number of studies on the effect of test anxiety over academic achievement or performance (Akinsola & Nwajei, 2013; Brown et al., 2011; Cassady & Johnson, 2002; Chapell et al., 2005; Rana & Mahmood, 2010), its relationship between other variables has been lacking in the field. In other words, the question of "How does test anxiety predict academic achievement?" has been asked to a great extent. However, the question of "What predicts test anxiety?" has not been a top concern for researchers. The effect of test anxiety on academic achievement is accurate, yet the question of what the other predictors of test anxiety are needs to be examined deeply. In this sense, other related variables can be defined and interventions can be improved to work against test anxiety by working on its predictors.

The educational systems and the importance attached to the exams seemed to play the key role in test anxiety issue. In Turkey, it is among the highest crucial problems for all grades including middle/high school and college students due to prominence of educational system which is full of examinations. Test anxiety of Turkish students has been studied with a diverse range of variables including the relationship between parenting styles (Güler, 2012), irrational beliefs (Boyacioglu & Küçük, 2011; Güler, 2012), automatic thoughts (Güler, 2012), emotion regulation strategies (Dora, 2012),

perfectionism (Başol & Zabun, 2014; Kandemir, 2013), attending private courses besides schools (Kavakci et al., 2014), social support (Yıldırım, 2007), learned helplessness (Akca, 2011), etc. The importance of university entrance exam made the topic to be investigated curiously in middle or high schools.

However, studies in Turkish literature have been lacking the sample of college students compared to middle or high school students. In a few studies with college students, Aydin (2009) examined the role of automatic thoughts in predicting state anxiety of college students while they were getting ready for final exams. The results of the study showed that state anxiety was significantly predicted by automatic thoughts, which could indicate the importance of relationship between cognitions and test anxiety. Additionally, Dora (2012) found that emotion regulation strategies and rumination was associated with test anxiety of Turkish college students. The findings of the study indicated that the less students had self-control and cognitive reappraisal, the more they had test anxiety. Also, the increase in rumination level resulted an increase in test anxiety of college students.

2.3 Theoretical Models of Test Anxiety

Many theories have tried to give an explanation for test anxiety: Drive Model (Mandler & Sarason, 1952); Cognitive-Attentional Models (Sarason, 1980); Information Processing Model (Naveh-Benjamin et al., 1981); Self-regulation Model (Carver & Scheier, 1981); Self-worth Model (Covington, 1984); and Transactional Model (Spielberger & Vagg, 1995). After Mandler and Sarason (1952) had introduced test anxiety literature for the first time with Drive Theory, test anxiety started to improve in the light of different perspectives as a different concept from general anxiety. In Drive Theory, two previously learned drives were affecting students during testing. The learned task drives encouraged the individual to finish the task effectively. However, in learned anxiety drives, there were both task-related and task-unrelated responses in which the person felt anxiety, physical symptoms or low self-esteem and those responses influenced the performance in a negative way.

In information processing model, the reason for test anxiety was stated on the problems in the process of learning the knowledge. Learning requires four steps as coding, storing, organizing and retrieving and when there was a problem in one of these steps, test anxiety aroused in students (Naveh-Benjamin et al., 1981). Self-regulation model put emphasis on self-knowledge which was shaped by competence beliefs. When an individual experienced failure and attached this failure to ability instead of effort, test anxiety aroused in the next threatening event due to lack of belief for ability. Self-worth model attached importance to achievement to feel worthy. This close link between self-worth and accomplishment resulted in test anxiety for students who regarded success after the exam as a sign of self-esteem.

The transactional model proposed by Spielberger and Vagg (1995) was an implementation of trait and state anxiety approach into test anxiety. In transactional model for test anxiety, the individual perceived that the ways of dealing with stress resulted from anxiety provoking event were not enough to cope with the problem. Later models were developed by adding new perspectives, especially a combination of different views. Leadingly, Skills Deficit Model focused on the lack of ability to call the required knowledge during the test and having anxiety as a result of consciously being aware of this lack of ability (Naveh-Benjamin, McKeachie, & Lin, 1987). That is, test anxiety was not only a consequence of cognitions but also inability to recall the knowledge.

However, according to Zeidner (1998), none of the existing theories has been explaining test anxiety broadly. Traditional views about test anxiety proposed that individuals struggled with worry, unrelated thoughts and self-evaluative thinking during tests (Sarason, 1959). However, test anxiety has been also verified to be occurring before testing time meaning that student preparation has also been affected negatively by lack of subject comprehension or knowledge (Cassady & Johnson, 2002). Crucially, it should be noted that among all these various theories, the cognitive aspect of test anxiety has taken the attention of researchers to much extent (Knoll, 2008). One common characteristics of test anxious people was to have self-

dysfunctional beliefs ranging from having the desire to perform well to critically being evaluated by self and others (Clark & Wells, 1995). Zeidner (1998) associated the level appraisal of testing situation with the level of test anxiety. According to Sarason (1980), Cognitive-Attentional Model described test anxiety as the different attention level of high and low anxious students towards task-based perception. This theory indicated that high anxious students attached low attention to task-based cognitions and so produced wrong answers to questions since they were highly concerned with their anxiety or irrelevant thoughts rather than the task. Sarason (1980) proposed that the more anxious a person was, the more s/he focused on himself/herself and this resulted in low academic performance.

The attentional theory has been regarded as crucial due to its relation with the cognitive aspect. Putwain et al. (2010) suggested that how a person directed his/her attention towards subject matter triggered the test anxiety. If the person has cognitions related to failure, it is highly possible that he/she will have test anxiety. Moreover, the early tests experience has been quite prominent in the level of test anxiety possessed later (Davis et al., 2008). In this sense, previous education years are essential dimensions in dealing with test anxiety issue. It should be noted that the theory did not include psychological aspects of test anxiety.

The development of cognitive-behavior therapy paved the way for the interventions such as cognitive restructuring and later cognitions were studied in dealing with test anxiety. In a meta-analysis study, Hembree (1988) concluded that both behavior and cognitive-behavior interventions could be used to minimalize test anxiety. Through years, the treatments of these theories have been used with different samples in different cultures (Davis et al., 2008; Huberty & Dick, 2006; McDonald, 2001; Robinson, 2009; Zeidner, 1998).

2.4 Theoretical Framework of Study: Acceptance and Commitment Therapy

The attempt of applying new concepts for current problems opens up new horizons for practitioners. Consequently, test anxiety can be a new broad area for acceptance

and commitment therapy which is the third wave of cognitive and behavior therapy (Brown et al., 2011). Acceptance and Commitment Therapy (ACT) has brought a current perspective which is based on staying with the emotions or experiencing the problem rather than trying to change it. ACT is based on reaching psychological flexibility in engaging in life events. The interventions of theory have been used in many different problem areas such as addiction problems, chronic pain, wok stress, cancer patients, social and general anxiety, depression, obesity, etc. and they have been mostly compared with CBT interventions (Öst, 2014; Ruiz, 2012). Among these problems, test anxiety has been studied few in number, especially with experimental studies and further research suggestions have included examining test anxiety in different cultures and with different variables under the light of ACT (Brown et al., 2011). Considering suggestions in the literature, when dealing with test anxiety, acceptance and commitment therapy as third wave of cognitive theories was regarded as the framework for the present study. Thus, study variables of rumination, self-forgiveness, perfectionism cognitions and cognitive defusion were picked in accordance with the ACT concepts.

ACT evolved as the third wave after behavior therapy and cognitive behavior therapy (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Hayes et al. (2006) argue that the focus of changing the behavior and failing to mention feelings in traditional behavior therapy led the born of cognitive behavior therapy with the extension of working on behaviors by adding cognitive aspects. Cognitive behavior therapy does not meet certain needs of the clients as it focuses on changing the thoughts and emotions in order to have a change in the behavior. However, the theory behind ACT holds the view that trying to change the thoughts and feelings is difficult and having those kinds of thoughts and feelings is natural to human beings. Instead, it is necessary to change how we associate ourselves with our thoughts and feelings.

ACT rests on strong philosophical and theoretical roots. The philosophy behind ACT is based on functional contextualism. According to functional contextualism, there is not only one truth; on the contrary, the meaning is gathered according to assumptions

stated before the events (Hayes, Strosahl, Bunting, Twohig, & Wilson, 2010). Also, ACT has evolved from Relational Frame Theory (RFT) (Hayes, Barnes-Holmes, & Roche, 2001), which regards language and cognitive aspect of human beings to change the function. In fact, ACT is among the ways of the application of RFT (Hayes & Lillis, 2012). The basic assertion behind the RFT indeed makes the roots of the theory strong: psychopathology is mostly related with language; that is, reducing the damaging language structure and using a more constructive structure is required according to the therapy (Hayes et al., 2010). According to RFT, language not only helps us live a meaningful life but also destroys our lives with its various functions like irrational thinking. By using the language to dispose of suffering, people can have fully functioning life (Hayes et al., 2010). Language is not used to create problems, but as a means of dealing with problems by using direct experience. The RFT asserts that the reasons of clients' problems are mostly related to faulty or inadequate relations (Hayes et al., 2010), which need to be altered functionally. Culture can also be another factor that makes people find reasons or causes for the events rather than focusing on functions or experiencing (Hayes, Strosahl, & Wilson, 2003). The source of pain is due to having relations between hurtful events. Consequently, it is crucial to focus on positive function of these relations. Within this perspective, ACT implementations highly regard RFT by using the language functionally.

2.4.1 Psychological Flexibility and Related Concepts

ACT has broadened the psychology literature with its unfamiliar concepts. It aims at creating psychological flexibility, which means experiencing emotions, thoughts or past events without trying to change them and provides being conscious in the present moment based on values by some ways of acceptance, commitment and behavior interventions (Hayes & Lillis, 2012). The opposite of psychological flexibility includes having experiential avoidance, stuck in the past or unclear future, undetermined values, cognitive fusion, having a dream self and being inactive, which can be a sign of psychopathology (Hayes & Lillis, 2012).

ACT tries to achieve psychological flexibility by applying six ACT concepts: acceptance, cognitive defusion, self-as-context, committed action, values and attention to present moment (Hayes & Lillis, 2012). These concepts are not on a line, each one of the concepts can take the first place as the starting point of the process and every one of the concept supports the other concepts. For example, committed action goes hand in hand with the values (Hayes et al., 2006) while cognitive defusion increases the possibility of being in the present moment (Hayes et al., 2010). As ACT hexagon (Hayes et al., 2010) shows in Figure 2.1, all concepts of psychological flexibility have relations with each and every other concepts and work hand in hand with all others. There are interdependent lines among all core concepts. What is desired in ACT is to stay in the middle of the diagram by achieving psychological flexibility (Hayes et al., 2010).
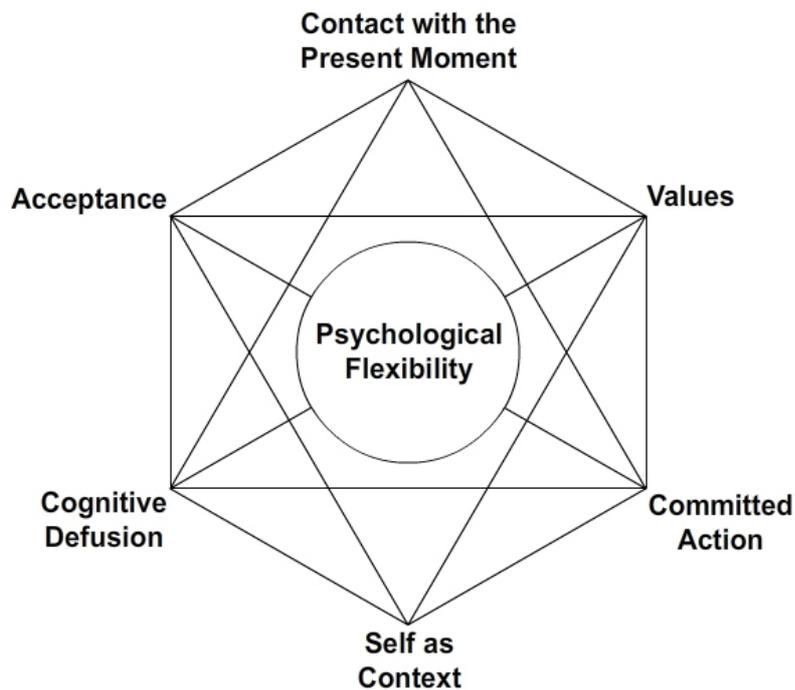
Figure 2.1 - ACT Hexagon (Hayes et al., 2010)

Acceptance is regarded as being aware of and experiencing the events with interest and without trying to change them offensively. It suggests people to be openly aware of the whole process they go through. They can practice the events with curiosity by accepting to experience the negative sides as well. Hayes and Lillis (2012) mention that acceptance is said to be the opposite of experiential avoidance, which is described as the need to get rid of negative painful events, thoughts or feelings so as not to experience the pain. People cannot avoid negative events in life but they can try to avoid unwanted feelings related to negative events. However, in ACT, thinking over the ways of getting rid of something bad makes it stay in the present moment (Hayes et al., 2010). Notably, acceptance is mostly related with working with the pain in the present moment. It should not be confused with tolerance; that is, it requires accepting the negative event and still continuing even with patience.

In ACT, it is required to have *cognitive defusion*, which means changing the way of relation with the thoughts instead of being overwhelmed with them. In other words, it is just a way of putting distance between thoughts and the person (Hayes et al., 2010). The ACT underlines that it is impossible not to think, dismiss an idea from somebody's mind or unlearn. However, the function of context can be changed even if relations cannot be changed between events. Hayes and Lillis (2012) explain thoughts as "…, it is something one can look *at*, not merely look *from*." (p. 48). There are several methods used for cognitive defusion, but all have one basic aim that is to make the person aware that a thought is just a thought coming and going in the moment. It is not related to the person; it is a process of mind. When the client considers thoughts as only thoughts and the products of language, s/he does not let them control one's life (Hayes et al., 2010).

Hayes et al. (1999) discusses three types of self in order to discuss about one unique self: the self as content, self as process and self as context. In ACT, while *self as context* is emphasized, self as content is minimized. Hayes et al. (1999) name self as context as conscious process being far away from thoughts and verbal statements. It symbolizes the part of your perspective that remains through your life independently

from thoughts, feelings, age or physical environment which are changing over time. Self as context can be called as an ability of noticing or observing in each of us (Bach, Moran, & Hayes, 2008). It is the part that can see what is happening in self as content without taking them as unchangeable or real. Therefore, bad experiences can be more acceptable when people are aware that it is the content not the "self as context" (Bach et al., 2008). On the other hand, the conceptualized self is regarded as the whole story a person tells for himself/herself. High dependency on conceptualized self might cause psychological inflexibility (Bach et al., 2008). Therefore, self as context (or observing self) becomes a crucial point of "self" part in hexagon increasing psychological flexibility.

From ACT perspective, *attention to present moment* means focused attention and being willingly aware of in the present moment. The logic behind it is the inflexibility of staying in the past and future. The past is full of unchangeable events and the future will take shape in light of present. Consequently, now is considered as having flexibility. Attention to present moment is required not to have some clinical problems such as trauma or rumination (Hayes & Lillis, 2012). Because present moment is used as a bridge between past and future in these types of problems. In ACT, it is aimed at focusing attention flexibly into present with the help of some exercises like mindfulness techniques (Hayes et al., 2010).

ACT attaches importance to *values* chosen by the person because the theory argues that values direct people's behaviors. But being careful about the source of values is important. They take its sources from the heart not from the mind. Values are not the things that people like or should have or society expectations (Hayes et al., 2003); instead, they are the parts chosen by the people necessary to have a meaningful life. In other words, values are not the goals or reasonable statements (Hayes et al., 2010); it is mostly the importance of the process while achieving the goals in life. Hayes and Lillis (2012) advice to clear all "should" sentences based on others' thoughts or ideas. The theory declares that there is no life in which all chosen values are achieved but they help people direct their own lives based on this inner guidance. As

an example, for a student who had test anxiety, getting good grades could be the goal, but in fact, the individual had the value of having a good quality of education and future.

The last core concept of ACT is *committed action*. Based on values, an action is defined for behavior change. In this regard, ACT is pretty much like behavior therapy since the aim is to change the behavior based on chosen values. Actually, all other concepts work for committed action in ACT. The core aspect is the definition of values and getting an action towards them. Hayes et al. (2010) mention that individuals follow another committed action based on a value as they become successful in achieving the previous one. That is, further committed actions take place after achievement. On the contrary, unsuccessful attempts to reach committed action might cause self-blame, which is actually against the aim of ACT because the theory supports taking responsibility and work for achieving values.

2.4.2 ACT and Its Relation with Other Variables

Following the core concepts of ACT as a new theoretical perspective, it is necessary to explain other ACT terms. First of all, mindfulness is a method of ACT and it requires directing attention to yourself (towards feelings and thoughts) on purpose. Mindfulness prevents people blaming themselves by facing with all weaknesses and risks. Secondly, acceptance goes hand in hand with willingness because when somebody accepts the feeling, she/he willingly move forward toward the valued behavior. Willingness is not wishing for the negative emotions but to be ready to take a step further, take precautions or striving for value with experiencing the emotions. For a college student, being a well-qualified graduate can be the value, so the student should be willing to experience any kind of negative emotions like test anxiety. In this situation, the student should consider the anxious feelings as the steps for a qualified graduate (student's value), which activates the willingness to experience the emotions. Orsillo and Roemer (2011) stated that when people were faced with difficult emotions on behalf of values, even they did not like them or want them to be in other way, they could experience the emotions fully by increasing

psychological flexibility. The most crucial aspect is to find the deepest value and take even a small step further no matter which thoughts and emotions try to disturb. ACT rests on the belief that the fact that feeling anxious or distress is something troublesome is not enough to stop people in achieving what is aimed (Orsillo & Roemer, 2011). ACT does not mean relenting; there against, it helps being aware of emotions, understanding their nature or function and using all these for a valued living. Thus, it is not a passive process in which the person feels whelmed but requires curiosity and being flexible towards the emotions and events (Orsillo & Roemer, 2011).

Nowadays, ACT is a growing research field with promising results (Daltry, 2015; Hulbert-Williams, Storey, & Wilson, 2015; Lappalainen et al., 2014; Vowles & McCracken, 2010). Even though ACT has not proved that it has been more efficient in treatment than any other theories like Cognitive Behavior Theory, Rational-Emotive Theory, etc., a profound research suggests promising results in terms of its effectiveness. Notably, the researchers are curious about the evidence based research within different problem areas and have conducted several experimental research. In these numerous experimental studies, ACT implementations were found effective over anxiety, depression, stress management, chronic pain eating disorders, panic disorder, etc. (e.g. Brown et al., 2011; Daltry, 2015; Gil-Luciano, Ruiz, Valdivia-Salas, & Suárez-Falcón, 2016; Gloster et al., 2017; Gutierrez & Hagedorn, 2011; Sharp, 2012; Swain et al., 2013). Also, it is evident with the research that psychological flexibility helps curing psychopathology (Hayes & Lillis, 2012). However, ACT can be considered working better with major problems like chronic pain or anxiety than minor problems due to its touching the core sides (Hayes et al., 1999; Hayes & Lillis, 2012).

The reviewed literature has indicated that Acceptance and Commitment Therapy has been widely used in treatment of anxiety disorders (Sharp, 2012). Even, there was a published manual of ACT for anxiety disorders (Eifert & Forsyth, 2005). Hayes et al. (2006) investigated a variety of correlational studies and they concluded that

psychological flexibility including acceptance and value oriented movement was mostly negatively associated with anxiety.

ACT has broadened a range of variables including anxiety, rumination, self-forgiveness, perfectionism and cognitive defusion through its concepts (defusion, acceptance, committed action, self-as-context, values, being in the present moment) (Hayes et al., 1999; Hayes & Smith, 2005). Self-forgiveness in ACT has been explained through a step in taking committed action towards values defined by the person and it can be made easier by defusion especially in stressful situations (Hayes & Smith, 2005; Zettle et al., 2009). Rumination functions in the opposite direction for being in the present moment since it prevents focusing on the present by overthinking about past events, feelings or unwanted events (Martin & Tesser, 1996). Perfectionism cognitions can be highly associated with a concept opposite of acceptance which is among the core concepts of ACT because people with perfectionism cognitions stands far away from accepting the situation; instead, they emphasize an idealized concern in their mind (Stoeber et al., 2009). Cognitive defusion is already a contributor of psychological flexibility by preventing being unstuck in the thoughts (Hayes et al., 2010). Several studies have improved the influence of the concepts of ACT over various problems (Hayes et al., 2006; Ruiz, 2012). In line with the considerable amount of study, the diverse explanations of ACT about different concepts led the way of ACT or its core concept, psychological flexibility, to be used as a mediator variable in several studies (Ruiz, 2014; White et al., 2013).

To sum up, ACT is a new and different theoretical perspective in dealing with the problem instead of application of some cognitive or behavioral methods like desensitization, deep breathing, or trying to change automatic thoughts. On the contrary, ACT aims at engaging in the problem without trying to change it and changing the relations with the negative event. Considering the fact that ACT has been used in a wide array of problem areas from serious mental disorders, anxiety, addiction, depression to eating disorders, smoking or test anxiety (Hooper &

Larsson, 2015), it is worth studying the variables in ACT in relation to test anxiety.

2.5 Cognitive Test Anxiety and Its Relations with Rumination, Self-Forgiveness, Perfectionism Cognitions, Cognitive Defusion and Psychological Flexibility

In this part, literature review about the related variables of cognitive test anxiety was provided for the current study. Firstly, definition of rumination and related studies were provided. Then, self-forgiveness and its relationship with cognitive test anxiety was described. Thirdly, perfectionism cognitions were explained in relation to test anxiety. Finally, cognitive defusion was defined and reviewed through the literature.

2.5.1 Rumination

Rumination has been defined as repeating the thoughts over and over again in a way that gives harm to self. In rumination, most of the thoughts are focused on self and this focusing on self was positively associated with negative mood and anxiety (Mor & Winquist, 2002). In a more simple definition, rumination is "a manifestation of people's tendency to persist in goal-directed action until they have either attained their goal or given up the desire for it" (Martin, & Tesser, 1996). Also, Grant and Beck (2010, p.480) defined rumination as "a recurrent and excessive focus on perceived negative aspects of a past event". In addition, an extensive body of analyses have been conducted on rumination which is a cognitive process.

Martin and Tesser (1996) rested the factors of rumination on three main aspects. The first one came from the observation about parents and environment. The second one resulted from the inadequacy of parents' responding to negative events in a more effective way and finally some biological explanations could be found in understanding rumination. Rumination is linked to cognitive, affective and behavior features. The maintenance and influence of rumination does not occur in short term (Martin & Tesser, 1996). The theoretical models about rumination include causes, treatments, consequences and nature of rumination. In view of Martin and Tesser (1996), rumination might be for past, present or future; or positive or negative topic; or a job to be completed or being completed. When the individual has negative

thinking, then worry comes out as a difficulty. However, according to Hong (2007), while worry is associated with thoughts about future event, rumination includes negative past events.

Directing the attention on negative mood especially on reasons and outcomes of this mood is called rumination in which recurrent thinking is emphasized (Lyubomirsky & Nolen-Hoeksema, 1993). In this vicious cycle, the individual has so overflowed with negative repetitive thinking that struggling with the problem or taking action against it is blocked. The related studies also have ended up women's prone to rumination more than men (Nolen-Hoeksema & Morrow, 1991).

The most frequent ruminative questions are "What is the reason for events occurring like this?", "What will I do?", "What are my feelings?". Ruminative people find it difficult to give accurate and reasonable answers to these questions for various reasons both physically and psychologically (Nolen-Hoeksema, 2000). Being unsatisfied about answers provokes further questions and repetitive overthinking. To some extent or more, this gap causes anxiety for ruminative people because they cannot find a satisfactory answer. In addition, negative mood about past, present and future yields depressive mood for ruminators (Lyubomirsky, Tucker, Caldwell, & Berg, 1999).

In a similar sense, Martin and Tesser (1996) argued that rumination did not emerge when people had a goal-oriented behavior as a requirement of outside setting and had the capacity or qualification to complete it accordingly. However, when the requirements were beyond the qualification of the person, it became highly difficult to act; then, thinking repetitively but unrelated to predefined goal took shape as in the form of rumination. Martin and Tesser (1996, p.12) reflected it in an excellent way as "The thinking we call rumination occurs when people are out of flow for a long period of time." They also emphasized that rumination did not occur after each non-achieved goal but the ones in which people attached importance and had motivation to achieve it. The researchers pointed out the background reason of

rumination as "problematic goal progress". A solution can be directing attention toward another thinking, which is a very temporary solution (Martin & Tesser, 1996).

Even though rumination has taken the attention of researchers (Nolen-Hoeksema, 2000), it was suggested that possible effect on anxiety was needed to be explored. Because the literature indicated that thinking excessively with a bunch of negative feelings and thoughts resulted in anxiety (Lyubomirsky et al., 1999). Notably, the attempt to deal with adverse thoughts by rumination triggers anxiety due to excessive focus on negative aspect (Wells & Carter, 2009). To illustrate, in a very current study by Merino, Senra, and Ferreiro (2016), three groups of participants having Generalized Anxiety Disorder, Major Depressive Disorder and Mixed Anxiety-Depressive Disorder were compared in terms of worry and rumination and the results revealed that anxiety and depression was positively related to worry and rumination. The researchers discussed the issue in the light of rumination as having a hidden role in depression for depressed participants. Within this perspective, in their clinical study, Yang et al. (2014) found that catching the signs of worry was a better indication of generalized anxiety disorder whereas rumination was found to be included much in major depressive disorder. In another study conducted with undergraduate psychology students, rumination was indicated as the imperative factor in the progress of social anxiety (Valenaş & Szentagotái-Tatar, 2015). Furthermore, Yu et al. (2015) studied with more than four hundred undergraduate students and concluded that the increase in the level rumination resulted in high level of anxiety. The results also revealed that the influence of rumination on anxiety was mediated by dispositional optimism. In line with this information, Nolen-Hoeksema (2000) claimed that people having anxiety or depressive syndromes might have rumination as a part of personality. It is precise that rumination has been positively related to anxiety in different contexts and samples.

Considering its relationship with the negative thoughts, the primary factors causing rumination in individuals with different problems have still been a key concern for

researchers (Grant & Beck, 2010). Further studies clarified its detrimental relationship with trait anxiety showing the tendency of rumination by high anxious people (Grant & Beck, 2010; Nolen-Hoeksema, 2000; Zeidner, 1998). Nolen-Hoeksema (2000) proposed that under many types of psychopathology, rumination was figured out to a great extent. Similarly, Zanon, Hutz, Reppold, and Zenger (2016) investigated the role of rumination, anxiety and post-traumatic stress of university students' life satisfaction after a catastrophic event. The results pointed that there was a negative correlation between rumination, anxiety, post-traumatic stress and life satisfaction. Furthermore, in studies to find the predictors of depression and anxiety, rumination came out as the predictor (Clark & Wells, 1995). Rumination literature has dated back to explanations about social anxiety disorder as well (Clark & Wells, 1995). In social anxiety disorder, previous situation causing anxiety occurs in individual's mind even later the other event took place. The rumination of these negative thoughts lead to anxiety in future events (Clark & Wells, 1995).

In depression and anxiety, the impressive power of cognitive process is inevitable. This results in repetition of negative thinking especially focused on self for those anxious or depressed individuals (Mor & Winquist, 2002). However, it should be noted that in their meta-analysis study, Mor and Winquist (2002) concluded that there was a difference between focusing on public and private side of self. Obviously, when people focused on public side of self, they felt anxious, but when they focused on private side of self, there was not a significant relationship between anxiety level and private self.

The literature pointed that perfectionistic people showed a high level of rumination due to possible effect of feeling less control when faced with higher unreachable demands (Dixon, Earl, Lutz-zois, Goodnight, & Peatee, 2014). A profound finding was that people who could detract themselves were more successful problem solvers than ruminative people with respect to negative events (Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998). Martin and Tesser (1996) denominated the after-effects of

rumination as feelings like anxiety and sadness and the influence on other thinking processes like problem solving. In a similar manner, Weiner and Carton (2012) pointed to the fact that highly perfectionistic people ruminated much and it was crucial to find the mediators of this relationship to increase the ways for treatment. If factors influencing this relationship were defined, then the solutions could be enlarged by taking different points into consideration.

The literature has also demonstrated that rumination has been a mediator variable in various studies (O'Connor, O'Connor, & Marshall, 2007). Cox, Enns, and Taylor (2001) studied with patients of major depressive disorder and found that rumination mediated the relationship between anxiety sensitivity and depression. Additionally, rumination was found to play the role of mediator between perfectionism and psychological distress (O'Connor et al., 2007). Even though the participants of the study were relatively few in number (n=96), Harris, Pepper, and Maack (2008) reached the conclusion that rumination was a mediator variable between maladaptive perfectionism and depressive symptoms, which meant higher maladaptive perfectionism resulted in higher depressive symptoms when people ruminated. Furthermore, rumination was indicated as mediator between self-compassion and anxiety among undergraduate students (Raes, 2010). Based on the reviewed literature, it is clear that rumination has been an essential cognitive variable among psychological variables.

Rumination was highly stated against psychological flexibility by preventing individuals from being in the present moment (Hayes & Smith, 2005). In addition, rumination was considered as an obstacle for cognitive defusion which is among the core aspects of psychological flexibility (Hayes et al., 1999). The authors also noted that people who had ruminative responses could have difficulty in defining values. In contrast with being in the present moment, rumination caused people to call previous negative feelings of hopelessness, breakdown, deficiency or anxiety back to the present (Flaxman, Blackledge, & Bond, 2011).

Rumination is a broad topic including several types and relations. Flett, Nepon and Hewitt (2015) revealed that rumination differed from person to person in respect to comparison between self and others. The researchers took an initial position in explanation of social comparison rumination for which they provided a description related to test anxiety. According to their perspective, overthinking about other students' performances was described as social comparison rumination. The association between rumination and test anxiety has also been an issue of concern.

Considering the cognitive side of rumination, repetitive thinking over exam performance has been highly associated with test anxiety (Brown et al., 2011). In this sense, revealed literature pointed to the influence of ruminative negative thinking on test anxiety. The fact that test anxiety might occur before, during and after evaluative situation emphasized the role of rumination in test anxiety. When its occurrence at all three periods was regarded, rumination about before, during and past experience on exam might increase the level of test anxiety for future after testing situation. Hayes and Smith (2005) underlined the tendency for rumination when people have distructive thoughts and emotions by floundering, which can be dealt with consious awareness with the feelings rather than a fight. That is, for test anxious students, being aware of anxious thoughts will be the starting point rather than escaping from them. Similarly, Dora (2012) found a positive association between rumination and test anxiety among college students. The findings indicated that students having high level of rumination had high level of test anxiety.

Grant and Beck (2010) pointed out a highly vital aspect that the rumination should be studied with a definite stress causer rather than numerous stress causing events because individuals perceptions can change in quantity and frequency for different events. Therefore, testing rumination for a specific event is quite essential. In this regard, the researchers might measure test anxiety level of participants who have a specific exam referring a similar meaning for all participants, when a specific event condition was taken into consideration in relation to rumination.

With regard to rumination and test anxiety relationship, Grant and Beck (2010) conducted a study with undergraduate students to detect the predictors of rumination about testing situation. Measurements were applied before and after the exam and the results indicated that students with high level of trait test anxiety and in need of thinking beforehand were prone to experience rumination after the exam. This study also underlined that students commonly experienced rumination after testing situation as well when individual differences were taken into consideration. To put it more explicitly, the students who highly needed of thinking beforehand ruminated more after testing situation while the ones who less needed of thinking beforehand showed less rumination level after the exam. Furthermore, it should be noted that test anxiety was a controlled variable in examining the relationship between generalized and social anxiety disorders, which included rumination and worry as the basic factors, and verbal/non-verbal intelligence (Penney et al., 2015). This result indicated the possible crucial role of test anxiety in research investigating rumination and other related variables.

The reviewed literature represented that state/trait anxiety and rumination might be considered in relation with test anxiety. In this sense, Brooks et al. (2015) included state anxiety, trait anxiety, rumination, worry and distractibility in examination process as subscales of new the measurement, which they named as "Test and Examination Anxiety Measure". The scale was developed to test the anxiety of university students about examinations. The measurement showed promising results to be used in further studies. However, the literature has been apparent on the fact that the relationship between rumination and anxiety was excessively investigated in the literature compared to the number of limited research about rumination and test anxiety.

2.5.2 Self-forgiveness

The literature about forgiveness has improved quite impressively since 1980s (Enright, 1996; Hall & Fincham, 2005; Holmgren, 1998; Thompson et al., 2005; Wohl, Deshea, & Wahkinney, 2008). Forgiveness is categorized under forgiving self,

others and situations. In comparison with the high number of research about interpersonal forgiveness, self-forgiveness has not taken enough attention (Hall & Fincham, 2005). That is, the literature about self-forgiveness has not been so extensive as interpersonal forgiveness or forgiving others.

Even though there has been not a specific agreed definition of self-forgiveness, it was defined by Hall and Fincham (2005, p.621) as "a show of goodwill toward the self while one clears the mind of the self–hatred and self–contempt that result from hurting another". Another definition by Enright (1996, p.115) stated self-forgiveness as "a willingness to abandon self-resentment in the face of one's own acknowledged objective wrong, while fostering compassion, generosity, and love towards oneself".

Self-forgiveness is based on distracting worth attached to self from the false behaviors. In this sense, self-forgiveness comprises self-respect, compassion and acceptance. Holmgren (1998) conceptualized self-forgiveness under three steps. The first step involved the awareness of a guilt or mistake. Secondly, the individual should make a success of negative feelings faced as a result of mistake and finally, welcoming oneself in an accepting manner of inner side. Another model by Enright (1996) viewed self-forgiveness in four stages: feeling guilty or rejection; decision-making period; being aware of the situation; and finally reaching a conclusion with the new meaning. As it can be clearly understood from the definition and conceptualization of self-forgiveness, it requires a cognitive process in which motivation to act in an accepting manner towards self is encouraged (Hall & Fincham, 2005). From the perspective of another model, self-forgiveness consists of four stage: recognition, responsibility, expression and re-creating (Jacinto & Edwards, 2011). Recognitions starts after rumination about events and feelings. Then, responsibility is sustained through being aware of imperfection followed by recognition. This step includes a kind of self-empathy and insight towards self. The third step is expression in which feelings are expressed outside and the last stage is required to be prepared for the future by considering the past experience.

Forgiveness is regarded as a cognitive process in terms of engaging in cognitive restructuring in order to decrease negative thoughts and feelings (Zettle et al., 2009). Beyond other important aspects, forgiveness process starts with a certain cognitive determination to eliminate the negative feelings and reach a positive mood. A crucial point in forgiveness is that it results in taking action after deciding to forgive in spite of feeling aggrieved. That is, it includes cognitively choosing to work with the negative feelings. In a deep explanation about self-forgiveness, Jacinto and Edwards (2011) referred to self-forgiveness as a learnable skill and giving the person the chance of getting responsibility over the events. Otherwise, the person continued blaming himself as an inactive part. The researchers regarded self-forgiveness as a way of stopping rumination about negative feelings; consequently, it opened a new space for the self to be ready for the future events and gain self-confidence. Moreover, self-forgiveness was being aware of the reality that everybody could have deficiencies leading to being imperfect. According to Luskin (2003), people who criticized themselves in failure of a critical task in life could strive for self-forgiveness.

The reason why self-forgiveness is grounded on motivation is due to the fact that accepting responsibility for the behavior and the change process requires an encouragement. Inevitably, it is sometimes not possible to find enough motivation to forgive oneself especially in traumatic events like suicide. Yet, the literature supports the view that self-forgiveness can be done under many circumstances (Hall & Fincham, 2005). In forgiving process, it is essential to reframe cognitively, emotionally and behaviorally to no longer perceive the event as negative. The process is not excusing; on the contrary, it is giving a new name, perception or meaning to the event. As Hong and Jacinto (2011) acknowledged, the process contained changing feelings like guilt, blame, anxiety, regret, grief and anger into benevolence, love, empathy and kindness in a more facilitative way of psychological well-being.

Forgiving self is a difficult process on its own since it requires the acceptance of a wrong behavior and facing with the feelings came out as a result of this behavior (Holmgren, 1998). On condition that self-forgiveness does not include this acceptance and confrontation, pseudo self-forgiveness can be referred. That is, pseudo self-forgiving is based on self-deception or forgiving without believing in inner side. Consequently, it does not produce fault and regret as a pre-condition for self-forgiveness. The consequences of pseudo self-forgiveness might not long lasting as happened in self-forgiveness. The literature states self-forgiveness as a promoter for interpersonal forgiveness. Due to the fact that we firstly know how to forgive ourselves before forgive others, the issue of self-forgiveness has come into prominence. In interpersonal forgiveness, an individual forgives the other one for a harmful event. But in self-forgiveness, the individual forgives oneself for a harmful event either they did to someone else or on themselves (Terzino, 2010). For instance, a person might shout at someone without any reason and feel guilty for it. The person might forgive oneself for this behavior. In addition, a person on a strict diet might forgive oneself after going off the diet. Hall and Fincham (2005) summarized the differences between self-forgiveness and interpersonal forgiveness under the headings of form, focus, empathy, limits, reconciliation with victim and consequences. The prominent differences are in form, focus and empathy headings. While in self-forgiveness, behaviors, thoughts or feelings can be stated, only behaviors are found in interpersonal forgiveness. In the focus headings of forgiveness, the individual gives harm to self in self-forgiveness, but gives harm to victim in interpersonal. As the last prominent part, while empathy discourages self-forgiveness, it eases forgiveness of others.

Self-forgiveness has been considered as an important booster of the mental health by increasing life satisfaction, optimism, psychological well-being and lessening anxiety and depression (Koenig, McCullough, & Larson, 2001; Toussaint, Barry, Bornfriend, & Markman, 2014). In corresponding literature, there has been an attempt to examine the relationship between self-forgiveness and other variables. Yet, anxiety has been taken the leading point due to its possible effect on psychological well-

being. According to Berry et al. (2001), forgiveness was a predictor of anxiety in predicting well-being of people; indisputably, considering the strength effect of forgiveness on well-being, inability to forgive might cause psychopathology. In a similar vein, as the underlying factors of psychological well-being, Thompson et al. (2005) indicated that depression, anxiety, life satisfaction and anger were predicted by forgiveness. In addition to this, self-forgiveness was found to be negatively associated with general anxiety (Webb, Robinson, & Brower, 2009) and Ross, Hertenstein, and Wrobel (2007) stated the close relationship between anxiety and self-forgiveness. The research has also pointed to differences between types of forgiveness in terms of variables. To illustrate, Macaskill (2012) obtained that anger predicted other-forgiveness by itself whereas anxiety were related to self-forgiveness. However, still, the research about self-forgiveness and anxiety has been needed to be explored (Griffin, 2014).

Considering the negative effect of depression or anxiety on mental health, the predictors of this relationship have been recognized to a large extent. Within this perspective, Sternthal, Williams, Musick, and Buck (2010) tested self-forgiveness as a mediator variable for the relationship between depressive symptoms, major depression and anxiety together with other mediators such as attitudes, beliefs, support, etc. The researchers obtained the results that self-forgiveness was inversely correlated with depressive symptoms and interpersonal forgiveness was negatively correlated with anxiety. Besides, prior research revealed that higher level of interpersonal and self-forgiveness resulted in less psychological distress (Toussaint, Williams, Musick, & Everson, 2001).

Apart from anxiety, its relationship with some variables have recently been investigated. In a study with 206 participants, Dixon et al. (2014) gathered that rumination had a negative relationship with self-forgiveness. That is, the more people had rumination, the less they had tendency to forgive themselves. Furthermore, the researchers also concluded that self-forgiveness was positively associated with self-acceptance, which meant people who had a high level of self-

forgiveness were accepting themselves more. Similarly, Thompson et al. (2005) remarked the negative role of rumination in forgiveness. The increase in the level of rumination resulted in less forgiveness level. Also, the same study reached the conclusion that the more people had cognitive flexibility and detracting self, the more they had the tendency to forgive.

Due to the fact that self-forgiveness consists of accepting responsibility for the behavior, there might be a link between psychological flexibility and self-forgiveness especially for the core aspect of "self" in psychological flexibility (Zettle et al., 2009). Because psychological flexibility is based on experiencing the feeling without an attempt to change it. Similarly, self-forgiveness lies on the premise that there is an unchangeable event being felt negatively. According to Jacinto and Edwards (2011, p.429), the third step of self-forgiveness, expression, is defined as "Encountering the feelings once more with the intent to work with them to move on with one's life.", which coincidences with the core aspect of acceptance and commitment therapy. Consequently, self-forgiveness might be a variable to be studied within the perspective of acceptance and commitment therapy. In this regard, Enright (1996) acknowledged that the innermost of forgiveness comprised of acceptance of pain. That is, it might be unreasonable to think self-forgiveness and psychological flexibility as separate terms. Considering the fact that mindful awareness can help forgiveness process for an individual, Menahem and Love (2013) proposed to include mindful strategies like meditation in developing forgiveness for the self. Within this sense, Zettle et al. (2009) discussed the role of forgiveness in depression through acceptance and commitment therapy in a detailed core stone explanations including acceptance, defusion and self. Even though the research was not based on empirical findings, it was suggested as a grounded guideline for further research.

Forgiveness is also underlined as a relevant subject matter in acceptance and commitment therapy because of the active purposeful action. That is, the individual chooses to forgive following a series of thoughts, but at the end, the person concludes to forgive even being aware of the negative feelings (Zettle et al., 2009).

The process does not require changing the feelings; instead, it includes approaching the events from a different perspective with a different evaluation leading to be free in decision. Zettle et al. (2009, p.166) remarked the role of forgiving in committed action as "…it is useful to regard forgiving as being freely chosen with reasons rather than an action that is decided upon because of reasons". Moreover, like a function of observer self, forgiveness is linked to committed action in acceptance and commitment therapy in a way that it is a pre-condition to achieve the committed action towards defined values by willingness (Zettle et al., 2009). Otherwise, for an unforgiving person, it becomes harder to focus on valued direction when being stuck in the state of negative feelings. Moreover, forgiveness is regarded as an effective process in acceptance and commitment therapy (Harris, 2006). Because defusion can be used to help making forgiving process easier by setting a space between thoughts and the self.

In the light of all information, self-forgiveness can help a test anxious student to take committed action towards the desired goals (being a graduate, getting good grades, etc.) instead of having the negative feelings as an obstacle. However, up to date, the number of empirical research studying the role of self-forgiveness on test anxiety has been quite rare (Zettle et al., 2009). The literature supported the view that self-forgiveness increased the tendency to feel more positive. When test anxiety was taken into account, the lack of self-forgiveness might increase the feeling of anxiety towards exams. When decision-making period, which was among the four stages of self-forgiveness (Enright, 1996), was obstructed, there could not a new beginning in terms of decreased exam anxiety for the next exams. Within this context, self-forgiveness can be considered as a positive track for test anxiety. It was a self-focused process and Carver, Peterson, Follansbee, and Scheier (1983) acknowledged that students with less test anxiety focused less on themselves and felt more confident and focused more on the material. Consequently, the increase in the probability of self-forgiveness might decrease the level of test anxiety. Hayes and Smith (2005) proposed self-forgiveness as a step for awareness, and responsibiliy for committed action since it is something done for the welfare of self, not for the others.

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From this perspective, self-forgiveness was considered to have a possible role in cognitive test anxiety which could be altered by forgiving self in committed actions.

Furthermore, the adverse relationship between anxiety and self-forgiveness might support the view that individuals who could self-forgive might have reduced test anxiety. However, in literature, although self-forgiveness was associated with anxiety, there could not be found any research that directly examined the relationship between self-forgiveness and test anxiety while the relationship between psychological flexibility and self-forgiveness was supported in the literature (Zettle et al., 2009). During the current study, the question whether self-forgiveness predicts cognitive test anxiety through psychological flexibility will be attempted to be answered. Considering the cognitive side of self-forgiveness, finding an association between self-forgiveness and cognitive test anxiety through psychological flexibility can be a valuable contribution to the self-forgiveness literature.

2.5.3 Perfectionism Cognitions

Perfectionism has attracted the attention of researchers for many years and the term was defined as putting high standards for self-performance and trying to achieve those standards (Flett & Hewitt, 2002). The research about perfectionism goes back to 1950s but a great number of studies have been conducted for the last two decades (Hewitt et al., 2015). In a study suggesting perfectionism be included in DSM-V, it was seen that perfectionism might be linked to obsessive–compulsive personality disorder or borderline personality disorder (Ayearst, Flett, & Hewitt, 2012). Accordingly, Hewitt et al. (2015) argued that the basis of perfectionism should be investigated to find a way to deal with the problem because perfectionism increases susceptibility to psychopathology like depression or attempt to suicide.

Although various aspects of perfectionism were investigated, Flett et al. (1998) pointed out multidimensional perfectionism that should be searched, especially to understand individual differences in perfectionism. Among a variety of models describing perfectionism, Hewitt and Flett's (1991) model provided the most valid

explanations underlying the difference between self-oriented perfectionism, other-oriented perfectionism and socially-prescribed perfectionism (Stoeber, 2014). Self-oriented perfectionism describes individuals' struggle for being the perfect one by reaching the highest standards they set for their own behaviors (Stoeber et al., 2009). However, other-oriented perfectionism addresses the individuals who focus on others to be perfect and criticize their actions when they behave conversely (Stoeber, 2014). The third model comprises socially-prescribed perfectionism based on the viewpoint that others are expecting the person to behave in a perfect way. Therefore, those individuals want others to like them and being approved without any criticism (Hewitt & Flett, 1991). That is, the individual perceives that other people set high standards for him/her and it is necessary to reach those high standards by the individuals. The inner side of people are mostly the source of self-oriented perfectionism while socially-prescribed perfectionism mostly comes from outside. Consequently, self-oriented perfectionism is related to thoughts, cognitions or processes (Flett & Hewitt, 2002). Irrational thinking has been linked to perfectionist thinking (Ellis, 2002). In this sense, Flett, Hewitt, Whelan and Martin (2007) state that the difference between actions and ideal goals leads to perfectionist thinking based on automatic thoughts that are related to "should" sentences with respect to expectations.

Based on a deep analysis of empirical studies, Ayearst et al. (2012) discussed in detailed that other-oriented perfectionism and socially-prescribed perfectionism were crucial in detecting personality disorders compared to self-oriented perfectionism due to the fact that other-oriented and socially-prescribed perfectionism have been found to being in a positive relation with obsessive compulsive disorder, borderline disorder, passive-aggressive behavior and narcissism, etc. (Hewitt & Flett, 1991). The accurate relationship with personality disorders entitles perfectionism as a critical issue to be examined in field. The findings of Stoeber's (2014) study, which was the presider study on the point of investigating the relationship between multidimensional perfectionism and personality traits of DSM-V, revealed that other-oriented perfectionism has devoted to interpretations about the difference between

adaptive and maladaptive characteristics. This impressive result contributed to the importance of perfectionism since it was concluded that further innovations in definition of perfectionism under obsessive-compulsive disorder should be reconsidered by taking the multidimensionality of perfectionism into account.

The concept of perfectionism sheds light on cognitive-behavior therapies with a paramount viewpoint (Ellis, 2002). First of all, rational-emotive behavior therapy reviews perfectionism under irrational beliefs. In deep analysis, Ellis (2002) asserts that people have ambitions and wills in order to have an effective life by satisfying their egos, achieving their goals, being approved by significant others and staying comfortable and safe. Anyhow, if these perceptions of people turn into imperativeness and make life strict and dependable, then it causes perfectionism on the side of people. Above all else, stress and anxiety appear in people's lives (Ellis, 2002). It can be understood that perfectionism is closely related to anxiety on the bases of cognitive-behavior aspect since these people think and desire a lot but can do less.

The relationships between irrational thinking, perfectionism and anxiety can be best explained with a triangle. Irrational beliefs cause perfectionism and perfectionism lead to anxiety because this irrational thinking directs individuals to wrong interpretations. REBT is based on the premises that the events are not the causes of behaviors but the beliefs behind the events are the problem causers. That is, thoughts create the emotions and irrational thoughts create unwanted emotions. Similarly, Beck (1976) developed Cognitive Therapy which holds the view that negative thinking and beliefs about self and environment are the causes of problems. Negative events trigger the negative thoughts and lead to psychological disorders. Distorted thinking can be guided by perfectionistic thoughts like "I must be perfect." or "I am not good enough.". As a comprehensive explanation given for the relationship between irrational thinking and psychological disorders, perfectionistic cognitions can be closely related to psychological disorders.

The emphasis on cognitions in perfectionism led to the investigation of perfectionism cognitions as a new concept. Perfectionism cognitions are defined as the automatic thoughts that are based on concerns and striving to be a perfect one (Flett et al., 1998). The research about perfectionism cognitions has contributed a lot to perfectionism literature. Because perfectionism cognitions have given an extensive explanation beyond personality characteristics property of perfectionism. It is due to the fact that perfectionism cognitions are based on cognitive process. It could be about a specific event and perfectionism cognitions are measured through the frequency of thoughts. On the contrary, the trait aspect of perfectionism reflects a typical characteristics of perfectionistic person in terms of behaviors, thoughts and emotions (Hewitt & Flett, 1991). To measure whether a person has perfectionistic characteristics or not, it is required to get answers for trait-like statements. Prominently, the difference between trait perfectionism and perfectionism cognitions is that perfectionism cognitions are related to kinds of thoughts individuals have and their frequency (Flett et al., 1998). However, up to now, most of the research in the literature stands on trait perfectionism.

The self-report measurements about irrational beliefs included perfectionism cognitions. In a recent study conducted by Bridges and Harnish (2010), 25 scales about irrational beliefs were reviewed and it was discovered that perfectionism cognitions were identified similar to irrational beliefs and also used to gather automatic thoughts. In regard to relying on frequent thinking, it is rather typical to find psychosomatic signs in individuals who have perfectionism cognitions (Flett et al., 2012). In a way, stress might come out as a result of striving to be perfect. Being aware of imperfect and still having thoughts to be perfect might put the individual in kind of contradiction. The results of the heading empirical research indicated that individuals who were prone to have perfectionistic cognitions were likely to have more psychosomatic signs.

The literature indicated that perfectionism cognitions could be positively related with cognitive test anxiety. Because both of them followed a cognitive process (Eum &

Rice, 2011; Mills & Blankstein, 2000; Stoeber et al., 2009). One of the best explanations for the relationship between test anxiety and perfectionism a is self-regulation model in which individuals put some standards for themselves and in testing situation, they check their behavior regarding their standards (Eum & Rice, 2011). However, when there are discrepancies between actions and thoughts in mind, anxiety in testing situations occurs. People who have cognitive test anxiety might have perfectionistic thoughts like "I have to be the best in the classroom". Therefore, these kinds of perfectionistic thoughts might increase the anxious feelings with regard to exams. In this regard, it is worth mentioning that test anxiety can be strongly predicted by perfectionism from the perspective of self-regulation model (Eum & Rice, 2011). This model asserts that when people have standards for themselves and do not evaluate themselves negatively, their tendency to have test anxiety is low. However, when people have high standards and feel the stress of others' highly set standards for themselves, they have the tendency to experience test anxiety due to the gap between performance and expectations and they blame themselves (Eum & Rice, 2011). Hayes and Smith (2005) challenges the ideas of "striving to be perfect" by pointing to their meaningless since the world does not change by becoming the perfect one. Instead, awareness of mistakes in regard to achieving the values is encouraged. The authors underline perfectionism thoughts as letting the mind busy with outsider factors.

Similarly, in another study, Weiner and Carton (2012) studied with more than one hundred college students in order to find the relationship between perfectionism and test anxiety. The researchers found that the level of test anxiety increased with the perceptions of others who set high standards for the individual. On the other hand, when people had high perfectionistic thoughts formed by themselves, their test anxiety decreased. In other words, there was a negative relationship between self-oriented perfectionism and test anxiety. They concluded that perfectionistic concerns related to being evaluated by others were associated with test anxiety and avoidant coping mediated this relationship. Moreover, in their partial correlation analyses, the researchers concluded that there was a strong correlation between test anxiety and

perfectionistic concerns set by others when personally shaped perfectionism concerns were controlled.

The relationship between perfectionism and test anxiety has long been investigated in different studies and most of the studies highlighted the negative influence of maladaptive perfectionism on test anxiety. In this regard, Eum and Rice (2011) remarked that the link between perfectionism and test anxiety was highly influenced by the extent to which the perfectionism attempts were regarded as adaptive or maladaptive. The researchers mentioned about adaptive and maladaptive perfectionism in which adaptive perfectionism played the role of encouragement with high standards set by the individual while maladaptive perfectionism discouraged with high standards of others. Considering the positive contributions of adaptive perfectionism, test anxiety was negatively predicted by adaptive perfectionism. On the contrary, it was positively predicted by maladaptive perfectionism. In a very recent study, Arana and Furlan (2016) obtained the results that test anxiety was positively associated with maladaptive perfectionism for university students. Students who had maladaptive perfectionism were prone to experience higher level of test anxiety compared to others who could use perfectionism in an adaptive manner. In the study, it was also found that perfectionism explained 40% of the variance of test anxiety among university students, which was quite high in percentage.

Furthermore, in Eum and Rice's (2011) research, the positive relationship between cognitive test anxiety and maladaptive perfectionism indicated that as the perfectionism cognitions increased, cognitive test anxiety increased as well. Also, the same study indicated no relationship between adaptive perfectionism and cognitive test anxiety, which supported the influence of maladaptive perfectionism on cognitive test anxiety. Moreover, Mills and Blankstein (2000) found a positive relationship between maladaptive perfectionism and test anxiety. It was essential to mention that there was a positive relationship between self-oriented perfectionism and negative concerns about being unsuccessful in an exam and this finding

supported the view that this cognitive aspect of text anxiety was influenced by perfectionistic thoughts. In the same vein, Abdollahi and Abu Talib (2015) had concluded that the influence of adaptive and maladaptive perfectionism on test anxiety was the same with Iranian sample. Furthermore, Santanello and Gardner (2007) pointed out that the increase in maladaptive perfectionism led to an increase in worry in a sample of undergraduate students. The study indicated that perfectionism was positively associated with worry which is the sub-category of cognitive test anxiety.

While self-oriented perfectionism was associated with test anxiety, Mills and Blankstein (2000) came up with the conclusion that socially-prescribed perfectionism was positively associated with test anxiety for undergraduate students. In their research, the authors, in fact, concluded that while self-oriented perfectionist college students had self-efficacy, good learning strategies and goal orientation extrinsically, socially-prescribed perfectionists had low motivation and academic performance as well as test anxiety. To sum, individuals with high perfectionistic concerns shaped by other people were prone to high test anxiety level which resulted in low academic performance.

Aforementioned studies highlighted that perfectionism or perfectionism cognitions were studied with test anxiety. Soysa and Weiss (2014) examined the mediation effect of maladaptive perfectionism and academic procrastination between parenting styles and cognitive and affective test anxiety among 206 undergraduate students and they found significant results confirming that procrastination and perfectionism mediated the relationship between parenting styles and test anxiety. An interesting finding from the study indicated that explained variance of affective test anxiety was higher than cognitive test anxiety (17/18%- 12%, respectively) with these variables. However, there were studies in which other variables mediated or moderates the relationship between perfectionism and test anxiety. To illustrate, Abdollahi and Abu Talib (2015) ascertained the moderator role of emotional intelligence between maladaptive perfectionism and test anxiety among high school students. Similarly,

avoidant coping was the mediator between maladaptive perfectionism and test anxiety (Weiner & Carton, 2012).

Perfectionism cognitions is a new concept for Turkish literature like cognitive test anxiety. Thus, it is quite rare to find research about perfectionism cognitions; yet, there have been numerous research about perfectionism and test anxiety. Contrary to the world literature, studies about test anxiety in Turkey have mostly focused on middle or high school students who are on the verge of exams (Akca, 2011; Başol & Zabun, 2014; Boyacioglu & Kucuk, 2011; Güler, 2012; Kandemir, 2013; Kavakci et al., 2014; Yıldırım, 2007). In this regard, the studies about perfectionism and test anxiety have mostly concentrated on samples among middle and high school settings in Turkish literature. To illustrate, Kandemir (2013) investigated a model of perfectionism and achievement goals in predicting pre-exam anxieties of high school students. The results of path model indicated that perfectionism was a significant predictor of test anxiety and the more students had perfectionistic characteristics and academic goals, the more they had test anxiety.

Similarly, Tasdemir (2003) concluded a positive relationship between perfectionism and test anxiety with 489 second and third grade high school students. In middle school settings, approximately the same results have been found in terms of positive relationship between test anxiety and perfectionism. It was concluded that the affective aspect of test anxiety increased with the negative perfectionistic features of middle school students regardless of school type (state or private school) (Hanimoglu, 2010). Additionally, for Turkish middle school students, perfectionism and test anxiety were gathered as the negative predictors of success (Başol & Zabun, 2014). In a very current research, Başol and Zabun (2014) examined the role of multidimensional perfectionism, test anxiety, attending courses and parental attitude in explaining high school placement test with a sample of 460 middle school Turkish students. In their hierarchical linear regression analysis, they found that test anxiety was a negative predictor of student success. The research about the relationship between perfectionism and test anxiety in university settings have been quite rare in

Turkish literature. In fact, there has not been confronted by any research conducted with college students investigating the relationship between perfectionistic cognitions and cognitive test anxiety. The reality of limited research with college students in order to find the relationship between perfectionism cognitions and test anxiety become the first starting point of the current research.

Perfectionism has been regarded as an obstacle for reaching psychological flexibility since people with perfectionism have high standards to achieve rather than definition of values (Hayes & Smith, 2005). People with perfectionism thoughts might have the tendency to confuse goals with the values and therefore experience difficulty in taking committed action towards their values. Additionally, Hayes et al. (1999) mentioned that acceptance and commitment therapy regards being aware of not perfect for the individuals. Many of the interventions of the theory are based on accepting self as it is rather than an ideal life or picture for individuals which is mostly generated by modern culture (Hayes et al., 2003). ACT includes seeing the imperfection and experiencing positive and negative emotions or events through life. Within this context, perfectionism cognitions should be taken into consideration when psychological flexibility is attempted to be achieved.

2.5.4 Cognitive Defusion

Cognitive defusion means separating thoughts and the self from each other (Hayes & Lillis, 2012). The third wave of cognitive-behavior therapy, ACT regards cognitive defusion as a way of watching the problem from outside. The concept of cognitive defusion as a sub-category of psychological flexibility was explained in detail in 2.2 section of this chapter regarding Acceptance and Commitment Theory. In order to explain defusion, it is better to start with describing cognitive fusion (as the opposite of defusion) firstly. Cognitive fusion means living with the thoughts by not being moved from them. It means constructing relations with the events verbally rather than direct experience and moved accordingly (Bach et al., 2008). It is considered as the basic reason of problem because it restricts people to put some distance between themselves and their thoughts. It is like a harmony of people and their

interpretations. Cognitive fusion creates an unhealthy way of human functioning by thinking inside the problem (Hayes & Lillis, 2012).

Defusion helps to live in the present moment towards values instead of ruminating about the unwanted event (Hayes et al., 2006). In a similar vein, Luciano, Rodríguez, and Gutiérrez (2004) categorized ACT process under two major processes as defining values and behaving accordingly to reach these values; and advocating these values with the help of defusion especially for anxiety or despair provoking acts. Consequently, cognitive defusion can be used as a way of engaging in events which are considered as difficult to deal with by the individuals. Outside from this perspective, for an anxious person, having anxious thoughts is enough to label oneself feeling anxious. However, in defusion from ACT perspective, the individual should separate anxious thoughts from the self by realizing that she/he has only anxious thoughts. This does not mean that anxiety will control her/him.

A wide range of research has been conducted about using defusion in several health and psychological problems such as reducing fear responses in laboratory settings (Carmen Luciano et al., 2014), depression and anxiety (White et al., 2013), negative thoughts (Deacon, Fawzy, Lickel, & Wolitzky-Taylor, 2011), psychological distress and low self-esteem (Hinton & Gaynor, 2010), learned helplessness (Hooper & McHugh, 2013), emotional discomfort and negative thoughts (Masuda et al., 2010), eating problems (Moffitt, Brinkworth, Noakes, & Mohr, 2012). By definition of an evolving theory, most of the conducted studies have been experimental in ACT (Öst, 2014), yet correlational studies including various problems can be conducted to open new ways for further experimental studies. Because the increase in using ACT in several problem areas has been leading to new interventions to be used in diverse manner.

Up to date, though being a new theoretical perspective, ACT has been showing promise in terms of different application areas. To illustrate, Levin, Hildebrandt, Lillis, and Hayes (2012) performed an online program based on ACT perspective

including defusion exercises. Similarly, the efficacy and the ways of ACT strategies in working environment was provided in the study by Hayes et al. (2006). Additionally, a stress management group was performed by a university counseling center for undergraduate students (Daltry, 2015). Teaching the ways of cognitive defusion decreased the time intervals in which the person had negative thoughts and the need for experiential avoidance (Hooper & McHugh, 2013). In an experimental study, the group in which cognitive defusion was used decreased emotional discomfort and negative thoughts than the other two conditions (Masuda et al., 2010). The same study also indicated a reduced level of depressive evidences.

Furthermore, cognitive defusion had been compared with cognitive restructuring in examination of some problems (Deacon et al., 2011; Moffitt et al., 2012). In the latter study, people who received cognitive defusion strategies showed much growth in dealing with eating problems and cognitive defusion was indicated as a technique to be used easily than cognitive restructuring by the participants. Moffitt et al. (2012) also suggested cognitive defusion as a possible way of engaging in obesity problem. In the same vein, Pilecki and Mckay (2012) grouped undergraduate students into three as cognitive defusion, thought suppression and control groups. The results indicated that cognitive defusion reduced emotional distress after individual differences for negative affect were controlled. The common feature of these studies is that cognitive defusion is a fundamental aspect in ACT interventions. Among the other core stones of psychological flexibility in ACT, in a very current research, cognitive defusion and mindfulness strategies were indicated as the most fundamental aspects in the case of depression and anxiety related to aging (Roberts & Sedley, 2016).

The relevant literature indicated that using cognitive defusion was effective in reducing negative emotions like anxiety, sadness and hatred (Pilecki & Mckay, 2012) and the researchers revealed that participants in cognitive defusion group showed the highest decline in emotion activation. However, in this study, it was also found that in terms of anxiety, people in cognitive defusion group provided longer

responses to the films than thought-suppression group or control group. In fact, cognitive defusion was addressed as effective for hatred and sadness, but not for anxiety. Yet, the researchers discussed the inappropriateness of anxiety video for the case and cognitive defusion as a complicated process. Pilecki and Mckay (2012) attributed this finding to the explanation that cognitive defusion does not stop negative emotions but makes them easier to be experienced. Therefore, anxiety should still be included in cognitive defusion studies. The comparisons between groups indicated significant results between cognitive defusion and control group while there was not a significant difference between thought suppression and control group. These results showed promise that cognitive defusion might provide significant results in further experiments (Pilecki & Mckay).

Through the above-mentioned literature, it was encountered that mindfulness was a useful way in reducing anxiety. Concordantly, cognitive defusion was among the sub-categories of mindfulness together with acceptance, living in the present-moment and self as context (Harris, 2006). White et al. (2013) examined the association between mindfulness, psychological flexibility and depression and anxiety after psychosis. The results showed a correlation between psychological flexibility, mindfulness and depression and anxiety. However, psychological flexibility significantly contributed to the depression and anxiety more than mindfulness with a large variance explanation. Similarly, in their meta-analyses, Levin et al. (2012) listed several research conducted with university students by implementing cognitive defusion techniques. The study indicated a medium effect size for cognitive defusion which assisted defusion to be considered as a significant component in psychological flexibility. Nevertheless, Levin et al. (2012) drew attention to the fact that the lack of studies to intensify cognitive defusion aspect of psychological flexibility. Similarly, in their experimental study with social anxiety disorder patients, Niles et al. (2014) assigned participants into three groups as cognitive behavior therapy, acceptance and commitment therapy and control group for 12 weeks. In ACT group, after psycho-education about acceptance and valued living, cognitive defusion was promoted in following sessions in order to prevent

focusing on anxious language of past experience since bringing participants to the present moment was emphasized in ACT. Even though it was difficult to test the influence directly, the researchers argued that cognitive defusion had the highest impact on decreasing the negative thoughts.

Although cognitive defusion was taken into consideration in a great number of research, it was examined as a component of psychological flexibility. Considering the fact that cognitive defusion has generally been measured through the concept of ACT in previous studies, there has not been enough research in which cognitive defusion was examined as a separate variable of psychological flexibility. This might be due to the fact that the number of instruments developed to measure cognitive defusion as an ACT process have been limited (Hayes et al., 2006). For example, Forman et al. (2012) developed Drexel Defusion Scale including cases to be considered from the ability of cognitive defusion. Furthermore, Herzberg et al. (2012) compared two groups of undergraduate students to construct a scale measuring cognitive defusion of anxious people. In this well-rounded study with a total of 935 students, they reached a reliable and valid instrument to be used in clinical settings as well as healthy people. However, it is pivotal to mention that in recent times, most of ACT studies have particularly been regarding cognitive defusion as a separate part of flexibility (Hooper & McHugh, 2013; Moffitt et al., 2012). To advance the cognitive fusion aspect, Gil-Luciano et al. (2016) conducted a well-structured experimental study in which they assigned participants to two different defusion groups and one control group in terms of providing more flexible reaction to the discomfortable situations. When participants' level of cognitive fusion was high, they provided more flexible reactions compared to control group by displaying more tolerance to displeasure as a result of their high fusion.

Hinton and Gaynor (2010) asserted cognitive defusion as a dynamic aspect of ACT. According to Hayes et al. (1999), defusion was the essential point in taking committed actions regarding values. Within this sense, for a student who regarded being a college graduate as "a value", cognitive defusion might help decreasing the

possible exam anxiety of the student with its several techniques. The finding proved that cognitive defusion decreased the tendency to trust on the negative thoughts produced after negative emotions (Masuda et al., 2010). In the light of this result, cognitive defusion can have a positive influence on the anxious feelings about exams in terms of not trusting the negative thoughts about self like "I am an unsuccessful student" because Hayes et al. (2006) pointed out shortening the proportion of trusting the thoughts come to the mind as a crucial feature of cognitive defusion whose aim was to stand one step away from the thoughts.

Following the increasing usage of "cognitive defusion", it is quite contemporary that cognitive defusion has been studied in relation to other variables. In this regard, the eliminating role of cognitive defusion in test anxiety has recently been investigated in the literature. Brown et al.'s (2011) experimental study enlarged the literature of test anxiety of college students from ACT perspective. In their psychoeducational program regarding test anxiety, cognitive defusion was highly emphasized as a way of creating distance between cognitions and emotions because trying to control anxious feelings about exams helped anxious feelings staying on the surface. In defusion activity, the participants were taught to change the words of "but" to "and" considering test anxiety, which leads to experience anxiety but still continue studying by referring to Hayes et al.'s (1999) grounded explanation about cognitive defusion and its interventions. Besides, Brown et al. (2011) encouraged to use cognitive defusion techniques in group exercises or homework while studying for the exam in the day before and they concluded that using ACT was a powerful way in dealing with test anxiety. However, up to date, there could not be found enough number of research investigating the role of cognitive defusion in cognitive test anxiety problem. In fact, literature lacks the point that cognitive defusion might predict cognitive test anxiety significantly. Similarly, up to researcher's knowledge, there has not been any published research examining cognitive defusion and cognitive test anxiety in Turkey. Considering the effectiveness of using cognitive defusion techniques as indicated in previous studies, correlational and experimental studies can be increased to provide further knowledge. Thus, the concept of cognitive

defusion can be extended.

2.5.5 Psychological Flexibility

As a sub-category of anxiety, test anxiety has been less recognized in studies with ACT (Brown et al., 2011). Apart from Brown et al.'s study, only two studies have been found on test anxiety and ACT concepts. The first one was conducted by Zettle (2003) about math anxiety of undergraduate students and the second one was the effectiveness of mindfulness strategies on test anxiety by Sohrabi, Mohammadi, and Delavar (2013). The ACT view is based on experiencing all emotions rather than trying to avoid them. However, it is argued that society or the cultures have the tendency to refrain from experiencing negative emotions as they label people as "powerful" or "competent" when they do not feel despair, mistrust or anxiety (Orsillo & Roemer, 2011). While people are open to positive emotions or strive to feel love, enjoy, pleasure, they are trying to get rid of negative emotions like anxiety, hate or pain. Hence, all emotions are for human beings and the attempt to avoid negative emotions keeps them active.

In the light of such information, when test anxious individuals try to get rid of anxiety by using several strategies, they are, in fact, holding their anxiety level even high according to ACT view. In order to feel the success, achievement or victory, they are fighting with anxiety, fear or sadness. The reason why acceptance and commitment therapy can be used for test anxiety is the new perspective of living with it rather than controlling because the attempt to control anxiety includes focusing on anxiety much more. Instead, the individual should consider that negative feelings are also a part of life and there is not an end for negative feelings. According to Orsillo and Roemer (2011), controlling anxiety sometimes works but it also increases the frequency of the behavior as rewarding occasionally increases the possibility of the behavior.

Orsillo and Roemer (2011) pointed to the case of test anxiety by changing the perception towards the anxiety. If an individual had test anxiety, s/he wanted to get

rid of this feeling by thinking that this feeling was an obstacle for both remembering the information and the achievement. However, the authors argued that the individual should consider this anxiety as an indicator of the importance they attached to this exam for one's values. The anxious individual can use the anxiety to come on time, motivation and focus; on the contrary, if the individual considered the anxiety as problem, then the anxiety would obstruct the performance. Orsillo and Roemer (2011) discussed the mindful strategies of dealing with anxiety in a detailed way in their books. Various types of anxiety cases are examined to broaden the explanations about mindful strategies and a case about test anxiety was among the samples. Therefore, it can be suggested that mindful strategies of ACT can be used in dealing with test anxiety as well. Within this perspective, Sohrabi et al. (2013) examined the role of mindfulness strategies in dealing with test anxiety. In their experimental study with high school students, the researchers concluded from pre/post-test results that mindfulness strategies decreased the level of test anxiety among participants.

2.6 Summary of the Review of Literature

Test anxiety can be considered a common problem in education settings. Various theoretical perspectives have explained the concept of test anxiety from different point of views. However, Acceptance and Commitment Theory has changed the perspective from finding solutions for the problem to experiencing the emotions. This new wave view emphasizes the role of psychological flexibility in dealing with problems. Psychological flexibility can be increased by acceptance, being in the present moment, self-as-context, cognitive defusion, value-based life and committed action. Most of the related studies have indicated that acceptance and commitment theory can be used with various psychological problems including anxiety, depression, stress, etc. The variables that can be related to psychological flexibility including rumination, self-forgiveness, perfectionism cognitions and cognitive defusion were reviewed through the literature. Besides, the relationships between these variables and cognitive test anxiety were provided based on the previous abundant literature. However, the research about the relationship between

psychological flexibility and cognitive test anxiety are limited in the literature.

Overall, this chapter summarized the definition of cognitive test anxiety, the theoretical models of test anxiety and ACT perspective as a new approach in explaining test anxiety. The chapter provided an explanation to what extent cognitive test anxiety could be studied within ACT perspective. Then, it was followed by explanation of related variables of cognitive test anxiety including rumination, self-forgiveness, perfectionism cognitions and cognitive defusion. The previous literature enlightened the background of the study in a way that the relationship between rumination, self-forgiveness, perfectionism cognitions, cognitive defusion and cognitive test anxiety were discussed in a broad sense. The core aspects of psychological flexibility and its relationship with the variables of the current study were provided to widen the reasons for including these variables in the present study.

CHAPTER 3

METHODOLOGY

In this chapter, the methodological procedures of the study are described in five sections. In the first section, overall design of the study is summarized. The sample of the study is described in the second section. The third section gives information about the data collection instruments. The fourth section presents data collection procedure and in the last section, data analyses procedures are described.

3.1 Overall Design of the Study

The purpose of this study was to investigate the role of rumination, self-forgiveness, perfectionism cognitions and cognitive defusion over test anxiety through the indirect effect of psychological flexibility. Correlational research design that investigates the relationships among two or more variables without any attempt to manipulate them and to explore their implications for cause and effect (Fraenkel & Wallen, 2006) was used in the present study. In correlation research, the description of association between variables and prediction of possible outcomes can be obtained through more advanced correlational analysis like structural equation modeling (Jöreskog & Sörbom, 1996). In structural equation modeling, the phenomenon is explained through the relationship between observed and latent variables and the estimation and variances can easily be obtained among various variables (Jöreskog & Sörbom, 1996). Consequently, Structural Equation Modeling was utilized in the current study as the data analysis method.

In line with the purpose of the study, the following main research question was prospected:

- To what extent do rumination, self-forgiveness, perfectionism cognitions and cognitive defusion predict cognitive test anxiety through the indirect effect of psychological flexibility?

3.2 Participants

The participants of the study were 715 college students from English Language Preparatory school of a state university in Turkey. Students from all levels of proficiency (beginner, elementary, intermediate and upper-intermediate) were included in the sample. The accessible population of the study were 2644 students attending the English Language Preparatory school. In the population, 635 of the students were in beginner level, 1138 were in elementary level, 539 were in intermediate level and finally 332 students were in upper-intermediate level. In the current study, stratified sampling method that reflects the proportion levels of the population to the sample (Fraenkel & Wallen, 2006) was utilized. That is, the percentage of beginner, elementary, intermediate and upper-intermediate students included in the present study was similar to the proportions of students from different proficiency levels in the accessible population: 24% from beginner, 43% from elementary, 20% from intermediate and 12% from upper-intermediate level. Therefore, by considering the proportion of students in language levels, 240 instruments were distributed to beginner level, 430 to elementary level, 200 to intermediate level and 130 to upper-intermediate level. Thus, 1000 students were asked to participate in the study.

A total of 715 students were voluntary to participate. Among the participants, 351 (49.1 %) were female and 364 (50.9 %) were male. The demographic information related to gender, language level and faculty of participants was presented in Table 3.1. As shown in the table, most of the students were in elementary level and the least number of students were in upper-intermediate level. The age of participants

changed between 17 to 27 with a mean of 18.57 (*SD*=1.02). In terms of faculty, students represented all five faculties of the university.

Table 3.1

Demographic Information of the Participants

Variables	f	%
Gender		
Female	351	49.1
Male	364	50.9
Language Level		
Beginner	150	21.0
Elementary	343	48.0
Intermediate	175	24.5
Upper-Intermediate	47	6.6
Faculty		
Engineering	327	45.7
Economics and Administrative Sciences	101	14.1
Architecture	47	6.6
Education	78	10.9
Art and Sciences	162	22.7

3.3 Instruments

In the current study six instruments were used to collect data: Cognitive Test Anxiety Scale-Revised (CTAR) (Cassady & Finch, 2015), State Self-Forgiveness Scale (SSFS) (Wohl et al., 2008), Perfectionism Cognitions Inventory (PCI) (Flett et al., 1998), Drexel Defusion Scale (DDS) (Forman et al., 2012), Ruminative Response Scale (RRS) (Treynor, Gonzalez, & Nolen-Hoeksema, 2003), and finally Acceptance and Action Questionnaire-II (AAQ-II) (Bond et al., 2011). Sample items from the Turkish versions of all measures are presented in Appendices (Appendix J, K, L, M,

N, O). Also, Demographic Information Form was used to gather information about participants' gender, age, department, English language level. Within the scope of the present study, firstly a pilot study was conducted for the translation and adaptation of three instruments into Turkish: State Self-Forgiveness Scale (SSFS), Perfectionism Cognitions Inventory (PCI) and Drexel Defusion Scale (DDS).

3.3.1 Cognitive Test Anxiety Scale-Revised (CTAR)

Cognitive Test Anxiety scale was developed by Cassady and Johnson (2002) to measure the cognitive test anxiety. The measure includes items not only related to cognitive process during the test, but also the cognitive process in test preparation process and after the application of test. It is a 27-item measure on a 4-point Likert-type scale ranging from 1 (Not at all typical of me) to 4 (Very typical of me). The scale has a single factor structure. The score obtained from the scale changes from 27 to 108. Higher points reflect the tendency to have higher cognitive test anxiety. Cassady (2004b) have stated that points between 27 to 61 show low-cognitive anxiety, 62 to 71 moderate-cognitive anxiety and 72 to 108 high-cognitive anxiety. The reliability analyses pointed to a high level of internal consistency with Cronbach alpha of .91 (Cassady & Johnson, 2002). Test-retest analysis was conducted in time intervals of three times during an academic semester with undergraduate students (Cassady, 2001). The test-retest reliability of the scale was found .94, .91 and .88 respectively (Cassady, 2001). The high test-retest reliability showed that the scale had consistency in measuring cognitive test anxiety level of students in different times. In addition, the scale had construct validity in relation to Test Anxiety Inventory (Spielberger, 1980). Two sample items from the scale are: "During tests, I find myself thinking of the consequences of failing." and "At the beginning of a test, I am so nervous that I often can't think straight."

Cognitive Test Anxiety Scale was revised as Cognitive Test Anxiety-Revised (CTAR) by Cassady and Finch (2015) by removing reverse items. The revised version had 25 items similar to original items on a 4-point Likert-type scale ranging from 1 (Not at all like me) to 4 (Very much like me). Cognitive Test Anxiety Scale-

Revised, CTAR, was translated into Turkish by Bozkurt, Ekitli, Thomas, and Cassady (2017). The adaptation study of Turkish version of Cognitive Test Anxiety-Revised (T-CTAR) was carried out with 1075 high school students from different types of high schools (Anatolian, science, vocational schools, etc). In the first part of their adaptation study, Exploratory Factor Analysis was conducted with 536 participants and the results indicated a single-factor for the scale but two items (22 and 24) were omitted as there were loaded below .30. Item 22 was about being aware of mistakes after the exam and authors stressed that this component might not have a direct relationship with test anxiety. The authors also agreed that item 24 had questionable indices similar to the findings stated in the original scale development study conducted by Cassady and Finch (2015). The authors came up with an explanation underlying cultural factors in omitting items from the scale.

In the second part of the analysis, Bozkurt et al. (2017) conducted Confirmatory Factor Analysis (CFA) with 539 high school students in order to test the unidimensional structure. The results of CFA revealed that T-CTAR with 23 item provided better fit indices, CFI = 0.988, TLI = 0.987, RMSEA = 0.041, SRMR = 0.053. Overall, the scale consisted of 25 items in Turkish version with an omitted two items (item 22 and item 24). It was unidimensional and there was no reverse item in the scale. The T-CTAR had a high internal consistency with the Cronbach alpha of .93.

3.3.1.1. Confirmatory Factor Analyses and Reliability of T-CTAR for the Present Study

After getting necessary permission from the authors of the T-CTAR, S. Bozkurt (see Appendix E); in the present study, Confirmatory Factor Analysis for Turkish version of Cognitive Test Anxiety Scale-Revised was conducted with a sample of university students. As the adaptation study of T-CTAR was carried out with high school students, there was a need to conduct confirmatory factor analysis with the main sample of the current study (*n*=715), namely university students. The results of Confirmatory Factor Analysis of 23 item T-CTAR yielded unidimensional factor

structure [Satorra-Bentler χ^2 (224) = 1001.56, *p* =.00; *χ^2/df- ratio* = 4.47; *NFI* = .96, *CFI* = .97, *RMSEA* = .07]. It should be noted that some modifications between items 1-2, 6-17 and 21-23 were done through error terms. The goodness of fit indices indicated an acceptable model fit according to criteria offered by Hu and Bentler (1999); Kline (2011b); Maccallum, Browne, and Sugawara (1996); Schumacker and Lomax (2010); Wheaton, Muthen, Alwin, and Summers (1977): NFI and CFI .90 or above, RMSEA .08 or below and Chi-square/df ratio 5 or lower. As the data violated multivariate normality assumption, Satorra-Bentler Chi Square was reported instead of Chi-square. The results of confirmatory factor analysis conducted with the sample of preparatory school students in the current study yielded acceptable fit indices.

As further CFA analysis, unstandardized, standardized parameter estimates and *t* values were checked for each item. The results of unstandardized, standardized estimates, *t* values and explained variance for T-CTAR were summarized in Table 3.2. As shown in Table 3.2, the unstandardized factor loadings were between .35 and .61 while standardized factor loadings of items changed between .44 and .72. All *t* values of items were found significant changing from 10.67 to 22.19. Moreover, the variance explained by each item ranged from 19 % to 52 % as indicated in *R^2* column. Although the standardized factor loadings were above .30 for all items, the low level of explained variance might be explained with the type of sample. In the original adaptation study, Bozkurt et al. (2017) found factor loadings above .30 for the sample of high school students. The current study was conducted with college students. All in all, considering the *t* values and standardized loadings, it can be stated that the parameter estimates and all indices supported one-factor structure of T-CTAR in a sample of Turkish university students.

Table 3.2

Unstandardized and Standardized Parameter Estimates, t Values and R^2 for T-CTAR

Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
CTA1	.38	.54	13.71	.30
CTA2	.54	.63	17.32	.39
CTA3	.60	.72	19.57	.52
CTA4	.38	.51	11.77	.26
CTA5	.52	.58	17.94	.47
CTA6	.43	.57	15.35	.33
CTA7	.46	.58	15.18	.34
CTA8	.49	.69	15.82	.47
CTA9	.51	.66	15.55	.44
CTA10	.44	.51	12.77	.26
CTA11	.41	.61	13.18	.37
CTA12	.51	.65	17.46	.42
CTA13	.61	.70	22.19	.49
CTA14	.44	.50	13.24	.25
CTA15	.55	.69	18.03	.47
CTA16	.53	.72	16.90	.51
CTA17	.46	.61	15.44	.37
CTA18	.49	.58	15.64	.33
CTA19	.59	.64	20.33	.42
CTA20	.49	.53	16.79	.29
CTA21	.37	.44	10.67	.19
CTA23	.50	.49	13.29	.24
CTA25	.35	.47	11.22	.22

Note. All *t* values were significant. *p<.001*

In the current study, the Cronbach Alpha indicated a value of .93. Also, the test-retest reliability was carried out with 48 English Language Preparatory School students. The time interval for test-retest reliability study was one-week. There was exam free two-weeks interval between the second and third midterm. Thus, this time period was chosen to conduct test-retest study. The results showed that T-CTAR had a high test-retest reliability of .93.

3.3.2 State Self-Forgiveness Scale (SSFS) (Wohl et al., 2008)

The State Self-Forgiveness Scale was developed by Wohl et al. (2008). In this 17-item self-report measurement, participants were asked to rate items on a 4-point Likert type scale from 1 (not at all) to 4 (completely). The SSFS has two subscales: Self-Forgiving Feelings and Actions (SFFA) and Self-Forgiving Beliefs (SFB). For the scale, higher scores on each subscale means a higher level of self-forgiveness. There are nine reversed items: 2, 4, 7, 8, 11, 12, 14, 16, 17. The Cronbach's alpha was calculated as .86 for SFFA and .91 for SFB. The State Self-Forgiveness Scale subscales were found to be correlated with self-blame and depression (Wohl et al., 2008). SFFA subscale includes eight items (e.g., "As I consider what I did that was wrong, I feel accepting of myself") and SFB subscale includes nine items (e.g., "As I consider what I did that was wrong, I believe I am worthy of love).

3.3.2.1 Translation Studies of the State Self-Forgiveness Scale (SSFS)

In the present study, the scale was adapted according to the required steps in order to provide the actual meaning as in the original form and to prevent any cultural bias. In adaptation of the SSFS, the process suggested by Sousa and Rojjanasrirat (2011) was used. The authors listed translation into the target language, comparison between translated forms of the scales by experts, conducting cognitive debriefing, testing psychometric properties with the target population were among the steps of translation and validation studies of instruments.

In the current study, after getting permission from the author, M. J. A. Wohl, via e-mail (see Appendix B), in the first step, the scale was translated from English to

Turkish by five experts. Three of the experts were from the field of psychological counseling and remaining two were from the field of English Language Teaching. All of the scale translations were provided independently. In the second step, the five translated versions of the scale were examined by the researcher and her supervisor so as to choose the best fitting translation for each item. Then, the best translation reflecting the original meaning in Turkish was examined in terms of equivalence for the meaning and structure by an English language expert. The suggestions included using personal pronouns to make items clear and changing the places of some words to prevent inverted sentence. By taking all modifications offered by the English Language expert into consideration, the researcher assured that the items in the original and the translated scale had the same meaning. In the last step, cognitive debriefing was carried out.

According to Wild et al. (2005), cognitive debriefing is conducted for testing the translation of a new instrument in terms of suitability of wording structure, cultural applicability and clarity to prevent any misconception. It should be applied to with five or eight native speakers of the target population. The participants are interviewed about the items and they report on what they understand from the statements (Wild et al., 2005). Therefore, in this cognitive debriefing, five English Language Preparatory school students were asked to explain what they understood from the items to discover to what extend the items were clear and understandable for them. The students were interviewed one by one. Firstly, they read the items and reported their opinions about understandability and clarity of the items. The researcher took notes regarding their comments. In cognitive debriefing, the students reported two items as having a very similar meaning: Item 12: "As I consider what I did that was wrong, I believe that I am terrible. (Yaptığımın yanlış olduğunu düşündüğümde, çok kötü birisi olduğuma inanırım.)" and Item 16: "As I consider what I did that was wrong, I believe that I am a bad person. (Yaptığımın yanlış olduğunu düşündüğümde, kötü bir insan olduğuma inanırım.)". They indicated that they could not understand what was the difference between these items. They offered to omit one of these items. Therefore, the researcher checked the items in the original

form, but it was seen that the two items were translated accurately. Therefore, it was necessary to carry the psychometric properties of these items in further analysis. In addition, regarding the adjective "awful (berbat)" in the item, students mentioned that they do not frequently use that adjective to talk about their personality. However, they could not provide any other alternative to substitute this adjective. Consequently, it was decided that this item should be carefully analyzed in further analysis. Also, students reported that it was boring to read the first statement at the beginning of each item: "As I consider what I did that was wrong,… (Yaptığımın yanlış olduğunu düşündüğümde,…)". Hence, the original scale was exactly the same and there was no problem in terms of clarity and cultural adaptability. Thus, the statement was kept as in the original form. Taking all these suggestions into consideration, the scale was finalized to conduct exploratory and confirmatory analysis as well as reliability and validity of the scale.

3.3.2.2 Exploratory Factor Analyses of Turkish Version of State Self-Forgiveness Scale (SSFS)

In order to test reliability, validity and factor structure of Turkish version of SSFS, a pilot study was conducted. In pilot study, convenient sampling method was used and survey was applied through the online survey system of the university in April 2015. As preparatory school had a busy schedule in the spring term, the preparatory school administration offered to apply the scales through online. Thus, more students could be reached even outside the classroom. The students were informed about the study on the web page of the Preparatory School and the survey link was provided. The voluntary students were asked to participate in the study. A total of 455 English Language Preparatory School students filled out the measure. Among participants, 251 (55.2 %) were female and 204 (44.8 %) were male. Students from four different language proficiency levels participated in the study: 125 of them (27.5 %) were from pre-intermediate level, 159 (34.9 %) were from intermediate level, 125 (27.5 %) were from upper-intermediate level and finally 46 (10.1 %) were from advanced level. Their mean age was 19.72 years ($SD = 3.47$).

The Exploratory Factor Analysis (EFA) was conducted to see items and their factor loadings in this sample (*n*=455). EFA was utilized via Principal Factor Analysis with Varimax rotation. KMO and Barlett's Test of Sphericity were appropriate to conduct factor analysis as .91 and .00 respectively. The Eigenvalues and Scree test showed a two-factor solution as suggested in the original scale. Varimax rotation results presented that these two factors accounted for 53.64 % of the variance in the data set. The first factor (Self-Forgiving Feelings and Actions) accounted for 40.45 % and the second factor (Self-Forgiving Beliefs) explained 13.19 %. Eigenvalues for the factors were 6.88 and 2.24, respectively. Factor loadings over .32 indicated a two-factor structure and the factor loadings are given in Table 3.3. However, some items were loaded in different factors unlike the original scale. According to Wohl et al. (2008), while items 2, 7, and 8 were in SFFA and 10, 13, and 15 were in SFB, they were just the opposite in adaptation study.

When closely examined, it was discovered that participants defined factors according to "positive" and "negative" meanings unlike in the original scale which were feelings-actions and beliefs. The items loaded in the first factor indicated positive feelings, actions or beliefs. On the other hand, items loaded in the second factor included all negative feelings, actions or beliefs. In Turkish sample, participants had difficulty in separating items as feelings-actions and beliefs. Instead, all positive items were on one factor and all negative items were loaded on the other. There could be a possible explanation in terms of cultural differences between samples in original study and Turkish adaptation. That is, in adaptation study, the two subscales were named as "positive perception of forgiveness" (items 1, 3, 4, 5, 6, 9, 10, 13, 15) and "negative perception of forgiveness" (items 2, 7, 8, 11, 12, 14, 16, 17) as the sample perceived items from the point of positive and negative.

Table 3.3

Factor Loadings and Communalities of Turkish Version of SSFS

Item	Factor 1	Factor 2	Communality
SF5	**.79**	.10	.56
SF6	**.78**	.03	.58
SF13	**.75**	-.01	.56
SF9	**.74**	-.03	.57
SF3	**.73**	.08	.48
SF10	**.72**	-.07	.57
SF15	**.67**	-.02	.46
SF1	**.53**	-.16	.38
SF4	**.38**	-.26	.31
SF17	-.11	**-.89**	.71
SF14	-.14	**-.88**	.68
SF12	-.01	**-.87**	.75
SF11	.07	**-.83**	.75
SF16	.00	**-.82**	.68
SF8	.08	**-.68**	.51
SF7	.18	**-.47**	.34
SF2	.22	**-.35**	.24

The results of exploratory analysis indicated with factor loadings showed that SSFS had two-factor structure in Turkish sample as well. However, items were grouped according to indicating positive or negative feelings-actions or beliefs rather than just feelings or beliefs. Therefore, this new two-factor structure should be confirmed by further analysis with this sample in the pilot study.

3.3.2.3 Confirmatory Factor Analyses, Validity and Reliability Studies of Two-factor Structure of Turkish Version of State Self-Forgiveness Scale (SSFS)

In order to test the factor structure of Turkish version of State Self-Forgiveness Scale and support evidence for the previously established factor structure, Confirmatory Factor Analysis (CFA) was conducted with the sample of 455 students in the pilot study. Before the analysis, necessary assumptions of confirmatory factor analysis were tested: As the data was gathered via online survey, it was compulsory to fill each item for the participants. In other words, there was no missing value for the pilot study. To test univariate normality, skewness and kurtosis values were checked and the data was seen as normally distributed. For the multivariate normality, Mardia's test was tested and the result of Mardia's coefficient showed that multivariate normality assumption was met as p>.05. Moreover, univariate and multivariate outliers (with z scores and Mahalanobis distance respectively) were detected and the confirmatory factor analysis was conducted both with the data with outliers and without outliers. The results indicated that there was a slight difference which can be ignored in order not to lose sample. Linearity assumption was tested with scatter plots and visual analysis showed no violation of assumption.

For CFA, LISREL 8.80 software was utilized and as the estimation method, Maximum likelihood was used and covariance matrices were analyzed for testing the two-factor structure of the Turkish version of SFFS. Chi square/df ratio, the goodness of fit index (GFI), comparative fit index (CFI) and the root mean square error of approximation (RMSEA) were used to test the fitness of the model. The results of the confirmatory factor analysis indicated an adequate model fit for two factor structure of the Turkish version of State Self-Forgiveness Scale with the current pilot sample [χ^2 (112) = 423.04, *p* =.00; χ^2/*df- ratio* = 3.77; *GFI* = .89, *CFI*= .91, *RMSEA* = .07] with some modifications between the error terms: item 7- item 8, item 1-item 5, item 11-item 12, and item 16-item 17. The criteria offered by Hu and Bentler (1999); Kline (2011b); Maccallum et al. (1996); Schumacker and Lomax (2010); Wheaton et al. (1977) was followed for the goodness of fit: GFI and CFI .90

or above, RMSEA .08 or below and Chi-square/df ratio 5 or lower (Bentler, 1990). The results confirmed the two-factor structure of the Turkish version of State Self-Forgiveness Scale with a slight modification.

Finally, in order to test the factor structure of Turkish version of State Self-Forgiveness Scale Confirmatory Factor Analysis (CFA) was conducted for the main study with 715 participants. The required assumptions of confirmatory factor analysis were tested before the analysis: Skewness and kurtosis values were calculated to test univariate normality, and the results indicated a normal distribution. For the multivariate normality, Mardia's test results showed that multivariate normality assumption was not met as $p<.05$. Therefore, instead of normal chi square, asymptotic covariance was calculated and Satorra Bentler Chi Square was reported. Moreover, the confirmatory factor analysis was conducted both with the data with outliers and without outliers as a result of detecting univariate and multivariate outliers. The results showed that the difference can be ignored in order not to lose sample. Linearity assumption was tested with scatter plots and visual analysis showed no violation of assumption.

As software program, LISREL 8.80 was used with Maximum likelihood to test the two-factor structure of the Turkish version of SFFS with the main sample ($n=715$) of the present study. Satorra-Bentler Chi square/df ratio, the goodness of fit index (GFI), comparative fit index (CFI) and the root mean square error of approximation (RMSEA) were used to test the fitness of the model. The results of the confirmatory factor analysis indicated an adequate model fit for two factor structure of the Turkish version of State Self-Forgiveness Scale with the current sample [Satorra Bentler χ^2 (113) = 550.22, $p =.00$; χ^2/df- ratio = 4.86; GFI = .90, CFI= .97, RMSEA = .07] with some modifications between the error terms: item 10- item 13, item 13-item 15, item 11-item 12, and item 16-item 17. The criteria offered by Hu and Bentler (1999); Kline (2011b); Maccallum et al. (1996); Schumacker and Lomax (2010); Wheaton et al. (1977) was taken as the reference point in reporting the results: the goodness of fit: GFI and CFI .90 or above, RMSEA .08 or below and Chi-square/df ratio 5 or

lower. The results confirmed the acceptable fit of two-factor structure of the Turkish version of State Self-Forgiveness Scale with a slight modification. After adjustment of error residuals between items, unstandardized and standardized parameter estimates were analyzed for two-factor structure of Turkish version of SSFS and t values for each indicator and explained variance were indicated in Table 3.4.

Table 3.4

Unstandardized and Standardized Parameter Estimates, t Values and R^2 for SSFS

	Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
SSFS Positive Perception	SF1	.61	.69	20.36	.47
	SF3	.61	.66	20.03	.44
	SF4	.54	.53	15.22	.29
	SF5	.66	.73	23.46	.53
	SF6	.68	.74	25.08	.55
	SF9	.51	.54	15.71	.34
	SF10	.53	.47	14.89	.30
	SF13	.46	.47	12.30	.22
	SF15	.53	.52	14.10	.27
SSFS Negative Perception	SF2	.49	.53	12.82	.28
	SF7	.41	.48	18.27	.23
	SF8	.67	.69	22.48	.48
	SF11	.71	.81	22.48	.65
	SF12	.64	.75	18.04	.56
	SF14	.67	.78	20.41	.54
	SF16	.57	.70	15.88	.48
	SF17	.54	.69	14.81	.48

Note. All t values were significant. $p<.001$

As presented in Table 3.4, the unstandardized factor loadings of positive perception of self-forgiveness were between .46 and .68 and for negative perception of self-forgiveness, they changed from .41 to .71. Also, the standardized factor loadings of

items in positive self-forgiveness sub-scale were between .47 and .74 and the items in negative self-forgiveness subscale changed between .48 and .81. All t values for items were found significant in both positive and negative sub-scales. In positive perception of self-forgiveness subscale, t values changed from 12.30 to 25.08 and in negative perception of self-forgiveness, they changed from 12.82 to 22.48. Also, the variance explained by each item in positive sub-scale ranged from 22 % to 55 % and for negative sub-scale from .23 % to 65 % as indicated in R^2 column. Therefore, it can be concluded that the indices and overall model supported two-factor structure of State Self-Forgiveness Scale for Turkish university students.

The Cronbach alpha was calculated for the internal consistency coefficient and the reliability of the total State Self-Forgiveness Scale was $α = .91$. For each subscale, The Cronbach alpha was $α = .87$ for "positive perception of forgiveness" and $α = .89$ for "negative perception of forgiveness". In the current study, the total score for SSFS is used to analyze the data. All in all, SSFS can be used as a reliable and valid instrument for English Language Preparatory School students. After the adaptation study, the test-retest reliability was carried out with 54 English Preparatory School Students. The time interval for test-retest reliability was one-week. The results showed that SSFS had a test-retest reliability of .79.

3.3.3   Perfectionism Cognitions Inventory (PCI) (Flett et al., 1998)

The Perfectionism Cognitions Inventory was developed by Flett et al. (1998) in order to measure perfectionism cognitions by gauging the frequency of automatic thoughts related to perfectionism. The scale comprises 25 items on a 4-point Likert type from 0 (never) to 4 (always). The scale has a one-factor structure; that is, the factorial structure of the scale is unidimensional with an eigenvalue of 9.39 and explaining 37.6 % of the variance (Flett et al., 1998). For the scale, higher scores indicate high level of perfectionistic thoughts. Also, a total score can be obtained from the scale. The scale had a high level of internal consistency with Cronbach's alpha pointed as .96. The test-retest reliability of the scale was .67. The validity of the scale was analyzed to a great extent and the scale was found to be correlated with Attitudes

Toward Self Scale (r=.55); self-criticism, r=.57; overgeneralization, r=.43 (Flett et al., 1998) and anxiety (Beck Anxiety Inventory) and depression (Beck Depression Inventory), r=.42 and r=.48, p<.001 respectively (Flett et al., 2007). Some sample items are: "I expect to be perfect." and "My work has to be superior". The scale was translated into Turkish and necessary adaptation procedure was carried out within the scope of the current study. The translation procedure and all factor analysis results together with reliability and validity results are presented in the following section.

3.3.3.1 *Translation Studies of the Perfectionism Cognitions Inventory (PCI)*

The following steps were carried out to reflect the actual meaning of the original form in Turkish language for the adaptation process. As in the previous adaptation process, after getting permission from the author, P. L. Hewitt, via e-mail (see Appendix C), the scale was translated from English to Turkish by five experts. The translation process was conducted independently by three experts from the field of psychological counseling and guidance and two experts from the field of English language teaching. Then, the best translation of each item was chosen following the comparison of five translated versions of the scale by the researcher and her supervisor. The translated items were carefully examined to make sure that there was no difference in terms of meaning reflected in the original item.

In the next step, the equivalence for the meaning and structure of Turkish items was examined by an English language expert. The expert offered to change the words in two items with their synonyms to make the statements clearer and added an indefinite pronoun in the beginning of a sentence to prevent ambiguity. In cognitive debriefing, five English Language Preparatory School students were interviewed to test the clarity of meanings. The students reported the indefinite pronoun stated in the beginning of sentence as leading to uncertainty; that is, they could not understand whether the pronoun was related to academic tasks or everyday tasks. As there was no other way of reflecting the meaning, the researchers agreed to follow the modification offered by language expert for this item. Finally, considering all of the modifications proposed by the expert, the scale was formed to analyze further

psychometric properties with necessary exploratory and confirmatory analyses.

3.3.3.2 Exploratory Factor Analyses of Turkish Version of Perfectionism Cognitions Inventory (PCI)

The reliability, validity and factor structure of Turkish version of PCI was carried out with a pilot study conducted with 418 English Language Preparatory school students of a state university in Turkey. Among participants, 238 (56.9 %) of them were female and 180 (43.1 %) of them were male. The participants were attending four different language level of English Language Preparatory School: 109 (26.1 %) of them were from pre-intermediate, 150 (35.9 %) of them were from intermediate, 118 (28.2 %) of them were from upper-intermediate and finally 41 (9.8 %) of them were from advanced level. Their mean age was 19.65 years (SD = 3.43). Data was collected via the online survey system of the university, which was explained in detail in the previous section, in April 2015.

The factor structure of Turkish version of PCI was examined by Exploratory Factor Analysis via Principal Component Analysis as offered in the original form of the scale. KMO and Barlett's Test of Sphericity were appropriate to conduct factor analysis as .92 and .00 respectively. The Eigenvalues and Scree test showed a single factor solution as suggested in the original scale. The results showed that the unidimensional structure of the scale accounted for 34.62 % of the variance in the data set. The factor loadings over .32 indicated a single factor and the factor loadings are given in Table 3.5.

Table 3.5

Factor Loadings and Communalities of Turkish Version of PCI

Item Number	Factor 1	Communality
PC15	.77	.36
PC3	.74	.23
PC17	.72	.54

Table 3.5 (continued)

Factor Loadings and Communalities of Turkish Version of PCI

Item Number	Factor 1	Communality
PC19	.71	.27
PC6	.70	.19
PC25	.69	.50
PC13	.68	.27
PC8	.66	.43
PC16	.63	.36
PC14	.63	.27
PC23	.61	.26
PC1	.60	.34
PC9	.60	.47
PC18	.59	.40
PC12	.58	.60
PC7	.52	.40
PC4	.52	.51
PC10	.52	.35
PC11	.51	.50
PC2	.48	.21
PC20	.46	.19
PC21	.44	.08
PC5	.44	.37
PC24	.32	.10
PC22	.32	.47

3.3.3.3 Confirmatory Factor Analyses, Validity and Reliability Studies of Turkish Version of Perfectionism Cognitions Inventory (PCI)

In order to support the previously established unidimensional factor structure of PCI, Confirmatory Factor Analysis (CFA) was done for the Turkish version of the PCI in the current study. Prior to the analysis, assumptions of confirmatory factor analysis were carried out. There were no missing values as a result of application via online survey system. Univariate and multivariate normality assumptions showed no violation in the pilot study. Furthermore, outliers were controlled by creating two different data set with outliers and without outliers. As there was not any difference, data with outliers was used for the following analysis. Finally, scatterplots indicated no violation of linearity assumption.

Confirmatory Factor Analysis for the pilot sample (n=418) was utilized with LISREL 8.80 software and covariance matrices were analyzed for the single-factor structure of the Turkish version of PCI. The fitness of the model was tested by including Chi square/df ratio, the goodness of fit index (GFI), comparative fit index (CFI) and the root mean square error of approximation (RMSEA). The results of the confirmatory factor analysis showed an adequate model fit for the original single-factor structure of the Turkish version of Perfectionism Cognitions Inventory with the current sample [χ^2 (241) = 702.61, p =.00; χ^2/df- ratio = 2.92; GFI = .88, CFI= .90, RMSEA = .07] with some modifications between the error terms: item 5- item 7, item 3-item 15, item 9-item 12, item 1-item 16 and item 22-item 24. The criteria offered by Hu and Bentler (1999); Kline (2011b); Maccallum et al. (1996); Schumacker and Lomax (2010); Wheaton et al. (1977) was followed for the goodness of fit: GFI and CFI .90 or above, RMSEA .08 or below and Chi-square/df ratio 5 or lower. The results confirmed the unidimensional factor structure of the Turkish version of Perfectionism Cognitions Inventory together with some modifications.

Finally, Confirmatory Factor Analysis was done for the Turkish version of the PCI with the main data (n=715) in the current study. Prior to the analysis, assumptions of

confirmatory factor analysis were checked and there seemed the violation of multivariate assumption in the main data. In the next step, LISREL 8.80 software was used for CFA and covariance matrices were checked for the single-factor structure of the Turkish version of PCI. The fitness of the model was tested by including Chi square/df ratio, the goodness of fit index (GFI), comparative fit index (CFI) and the root mean square error of approximation (RMSEA). The results of the confirmatory factor analysis indicated an adequate model fit for the original single-factor structure of the Perfectionism Cognitions Inventory with the current sample [Satorra-Bentler χ^2 (265) = 1285.96, p =.00; χ^2/df- ratio = 4.85; GFI = .89, CFI= .96, RMSEA = .07, SRMR = .06] with some modifications between the error terms: item 5- item 7, item 2-item 7, item 9-item 12, item 3-item 15. The criteria offered by Hu and Bentler (1999); Kline (2011b); Maccallum et al. (1996); Schumacker and Lomax (2010); Wheaton et al. (1977) was followed for the goodness of fit indices: GFI and CFI .90 or above, RMSEA .08 or below and Chi-square/df ratio 5 or lower. The results pointed an acceptable fit and confirmed the unidimensional factor structure of the Turkish version of Perfectionism Cognitions Inventory together with some modifications.

For further analysis to confirm the one-factor structure of Turkish version of PCI, unstandardized, standardized parameter estimates, t values and explained variance were checked and the results were summarized in Table 3.6.

Table 3.6

Unstandardized and Standardized Parameter Estimates, t Values and R^2 for Turkish Version of PCI

Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
PC1	.65	.57	12.65	.33
PC2	.41	.40	8.08	.16
PC3	1.02	.76	23.19	.57
PC4	.57	.46	10.58	.21
PC5	.36	.37	7.49	.13

Table 3.6 (continued)

Unstandardized and Standardized Parameter Estimates, t Values and R^2 for Turkish Version of PCI

Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
PC6	.97	.72	19.97	.52
PC7	.48	.46	9.56	.21
PC8	.79	.62	15.36	.39
PC9	.67	.53	12.04	.28
PC10	.60	.45	9.86	.20
PC11	.61	.47	10.36	.22
PC12	.64	.51	11.64	.26
PC13	.85	.66	17.74	.44
PC14	.83	.61	14.83	.37
PC15	1.13	.81	27.59	.66
PC16	.77	.61	15.64	.37
PC17	.97	.74	21.70	.54
PC18	.80	.59	14.49	.34
PC19	.89	.69	18.66	.48
PC20	.53	.42	8.44	.17
PC21	.40	.35	7.05	.13
PC22	.26	.22	4.14	.05
PC23	.74	.58	13.73	.34
PC24	.32	.27	5.23	.07
PC25	.97	.69	19.62	.48

Note. All *t* values were significant. $p<.001$

For PCI, the unstandardized factor loadings changed between .26 and 1.13 and the standardized factor loading of items changed between .22 and .81. All *t* values for items were found significant and they changed from 4.14 to 27.59. Also, the variance explained by each item ranged from 5 % to 66 % as indicated in R^2 column. As a

result of low factor loadings below .30, explained variance for the item 22 and 24 was low. Even though in the original scale development study, Flett et al. (2007) found all loadings above .40, the sample of the scale composed of psychiatric patients. However, in the current study, the sample consisted of college students. It should be noted that there was no need to remove the item considering the significance of t value but the findings should be interpreted cautiously. All in all, it can be summarized that the standardized estimates, t values and explained variance supported one-factor structure of PCI for Turkish university students.

The Cronbach alpha of the total PCI was $\alpha = .94$. The total score for PCI was used to analyze the data in the following process. Finally, it can be concluded that Turkish version of PCI can be used as a reliable and valid instrument for this sample, English Language Preparatory School students. For the test-retest reliability, 51 preparatory students in three different classes filled out the scale. The scale was applied as a post-test one week after the pre-test. The results showed that PCI had a test-retest reliability of .89.

3.3.4 Drexel Defusion Scale (DDS) (Forman et al., 2012)

The Drexel Defusion Scale (DDS) was developed by Forman et al. (2012) to measure the ability to reach a distance from internal experiences like thoughts and feelings. The scale includes 10 items based on a 5-point Likert type from 0 (Not at all) to 5 (Very much). The scale has a unidimensional factor structure. Although there were some conflicting discussion about possible two-factor structure of DDS (for anger, pain and cravings), the researchers finalized their study by mentioning that there should be future research to assess factor structure of the scale with larger sample size and CFA, but one factor solution was the best explanation based on the deep analysis and the theory behind (Forman et al., 2012).

A total score is obtained from the scale and higher scores taken from scale indicate a good state of psychological distance from inner thoughts and feelings; however, lower scores indicate inability to defuse from thoughts, so prone to more

psychopathology. There are no reverse items and the Cronbach's alpha was calculated as .83. The scale consists of items reflecting a scenario in which participants rate their answers based on the ability to be in a state of defusion. In the instruction part, a broad explanation was given to participants not to reflect their thoughts or feelings but the ability to defuse their thoughts. A sample from the scale was:" Feeling of anger. You become angry when someone takes your place in a long line. To what extent would you normally be able to defuse from feelings of anger?". The scale was translated into Turkish and necessary adaptation procedure was carried out for the current study. The translation procedure and all factor analysis results together with reliability and validity results are presented in the following section.

3.3.4.1 Translation Studies of the Drexel Defusion Scale (DDS)

As the first step, permission from the author, E. Forman, was taken (see Appendix D) by e-mail contact. Then, the adaptation process started following required steps in order to provide the actual meaning without any bias. First of all, five experts both in language and counseling fields translated the scale from English to Turkish independently. Three of the experts were in field of psychological counseling and guidance and two of them were in field of English language teaching. As a second step, the researcher and her supervisor compared all of the scenarios to determine the best fitting translation for each item. Later, an English language expert examined these Turkish items in terms of item clarity and structure. As the scale included scenarios as items, it was crucial to explain the statements clearly. The language expert agreed on the items apart from changing a word in a similar meaning. Regarding the modifications of the expert, the scale was administered to five Preparatory School students for cognitive interview. Students reported on the difficulty of understanding the meaning of "defusion". Therefore, there was added one synonym word in parenthesis at the end of all scenarios. Eventually, the scale was finalized to conduct exploratory and confirmatory analysis.

3.3.4.2 *Exploratory Factor Analyses of Turkish Version of Drexel Defusion Scale (DDS)*

The reliability, validity and factor structure of Turkish version of DDS were tested in a pilot study with the participation of 370 students from the Department of Basic English of a state university in Turkey. Among participants, 218 (58.9 %) were female and 152 (41.1 %) were male. Students from four different levels participated in the study: 96 (25.9 %) of them were in pre-intermediate level, 132 (35.7 %) of them were in intermediate level, 107 (28.9 %) of them were in upper-intermediate level and finally 35 (9.5 %) of them were in advanced level. Their mean age was 19.62 years (*SD* = 3.52). Data for the pilot study were collected by convenient sampling method in April 2015 via an online survey system of the university. The participants of the pilot study were excluded in the sample of the main study.

The factor structure of Turkish version of DDS was examined by Exploratory Factor Analysis via Principal Component Analysis with Promax rotation similar to the original study. KMO and Barlett's Test of Sphericity were appropriate to conduct factor analysis as .78 and .00 respectively. The Eigenvalues showed a two-factor solution similar to the discussions mentioned in the original scale construction study. The first three items for anger, food cravings and pain showed weaker loading so that the loading for the second factor was low. Promax rotation results presented that these two factors accounted for 41.99 % of the variance in the data set. The first factor accounted for 29.37 % and the second factor explained 12.62 %. Eigenvalues for the factors were 2.93 and 1.26, respectively. However, scree plot showed one factor solution for the scale. Those contradictory findings were quite similar to the explanations given in the original scale. As the authors of the instruments continued with the one factor solution by considering the statistical results and theory, in the present study, one factor structure was followed. Factor loadings over .30 indicated a single factor and the factor loadings are given in Table 3.7.

Table 3.7

Factor Loadings and Communalities of Turkish Version of DDS

Item Number	Factor 1	Communality
DDS6	**.76**	.57
DDS5	**.71**	.50
DDS7	**.69**	.47
DDS8	**.68**	.46
DDS4	**.65**	.42
DDS10	**.43**	.18
DDS9	**.41**	.17
DDS3	**.38**	.07
DDS2	**.37**	.06
DDS1	**.37**	.03

3.3.4.3 Confirmatory Factor Analyses, Validity and Reliability Studies of Turkish Version of Drexel Defusion Scale (DDS)

In order to confirm the unidimensional structure of the Turkish version of Drexel Defusion Scale, Confirmatory Factor Analysis (CFA) was conducted in the study based on the suggestions about the future research with a different sample and confirmatory factor analysis for greater confidence about the scale. Prior to the analysis, basic assumptions were checked for the pilot study of DDS and there were not any violations of univariate normality. However, results of Mardia's test indicated violation of multivariate normality, $p<.05$. Therefore, Satorra-Bentler was reported instead of normal chi-square.

Confirmatory Factor Analysis for the pilot study ($n=370$) was utilized with LISREL 8.80 software. The fitness of the model was tested by several criteria: Chi square/df ratio, the goodness of fit index (GFI), comparative fit index (CFI) and the root mean square error of approximation (RMSEA). The results of the confirmatory factor

analysis indicated an excellent model fit for original unidimensional structure of Drexel Defusion Scale with the current sample [Satorra-Bentler χ^2 (33) = 58.79, p =.00; χ^2/df- ratio = 1.78; GFI = .97, CFI = .95, RMSEA = .05] with little modifications between item 7-8 and item 9-10. The results confirmed the unidimensional factor structure of the Turkish version of Drexel Defusion Scale.

In the next step, Confirmatory Factor Analysis of the Turkish version of the Drexel Defusion Scale was tested for the main data of the present study. The results confirmed the original unidimensional structure of Turkish version of DDS with the current sample of 715 preparatory students: [Satorra-Bentler χ^2 (33) = 53.49, p =.00; χ^2/df- ratio = 1.62; GFI = .97, CFI = .98, RMSEA = .04] with little modifications between item 7-8 and item 9-10. The results of the confirmatory factor analysis indicated a perfect fit based on the reference point of goodness of fit: GFI and CFI .90 or above, RMSEA .08 or below and Chi-square/df ratio 5 or lower (Hu & Bentler, 1999; Kline, 2011b; Schumacker & Lomax, 2010). All in all, the results confirmed the unidimensional factor structure of the Turkish version of Drexel Defusion Scale with the sample of language preparatory school students of a university.

Then, unstandardized, standardized parameter estimates, t values and explained variance were checked to confirm one-factor structure of Turkish version of DDS and the results were presented in Table 3.8. As indicated in Table 3.8, the unstandardized factor loadings changed between .17 and 1.10 and standardized factor loading of items changed between .12 and .73. It should be stated that t values for all items were found significant. Also, the variance explained by each item ranged from 2 % to 58 % as indicated in R^2 column. The standardized factor loading of the first three items were below .30. As their t values were significant, the item 1,2 and 3 were kept in the scale for the confirmation study. However, items 1, 2 and 3 explained a very low level of variance.

Table 3.8

Unstandardized and Standardized Parameter Estimates, t Values and R^2 for DDS

Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
DDS1	.17	.12	2.03	.02
DDS2	.21	.16	2.39	.02
DDS3	.21	.16	2.56	.02
DDS4	.82	.55	10.58	.32
DDS5	1.05	.67	15.19	.49
DDS6	1.10	.73	16.37	.58
DDS7	.74	.62	9.92	.29
DDS8	.78	.61	10.16	.29
DDS9	.40	.30	4.52	.07
DDS10	.46	.31	5.68	.10

Note. All *t* values were significant. *p*<.001

The reason of low value of explained variance was due to low level of standardized loadings. In the original scale development study, Forman et al. (2012) gathered a two-factor solution from the first exploratory factor analysis and items 1, 2 and 3 indicated low loadings compared to other items showing strong loadings. The three items were loaded on one factor while the other seven items were loaded into the second factor. However, further analysis was supported one factor solution and the authors finalized the scale with a unidimensional structure.

The low level of standardized loadings can be explained with context of items. The items had statements about feelings of anger, cravings for food and physical pain, respectively. Probably, the students could not have an accurate relationship between the first three items and the other seven items which were mostly related to anxiety, motivation, sadness or future. In addition, up to researcher's knowledge, DDS was not translated to any other language. Thus, it was difficult to compare the psychometric properties of the scale in different context. The scale should be analyzed in different samples by paying attention to low loadings of first three items.

However, in the present study, as the *t* values were significant and factor loadings of exploratory factor analysis were above .32 (Tabachnick & Fidell, 2013), the items were not omitted, but the results should be interpreted cautiously. Finally, it can be concluded that the standardized estimates, *t* values and explained variance supported one-factor structure of Turkish version of DDS for Turkish university students.

The Cronbach alpha was calculated for the internal consistency coefficient and the reliability of Drexel Defusion Scale was α = .80. Finally, DDS is both reliable and valid to be used in Turkish context. The test-retest reliability study of DDS was conducted with 52 preparatory students from elementary level in three different classes within the same procedure applied in T-CTAR, SSFS and PCI. The results showed that DDS had a re-test reliability of .81.

3.3.5 Ruminative Response Scale (RRS) (Treynor et al., 2003)

Ruminative Response Scale (RRS) was originally developed by Nolen-Hoeksema and Morrow (1991) to measure ruminative responses and it was a subscale of the Response Styles Questionnaires, and the original RRS consisted of 21 items on a 4-point Likert type scale (1: Almost never to 4: Almost always). The Cronbach's alpha was calculated as .89 (Nolen-Hoeksema & Morrow, 1991). Higher scores indicated a higher tendency to ruminate in RRS. The short version of the Ruminative Response Scale was designed by Treynor et al. (2003) as including 10 items. The short version of the scale had two factors: Brooding (5 items) and Reflection (5 items) and Cronbach Alpha was .85 for the short form of the scale (Treynor et al., 2003). A total score can be obtained from the scale.

The short version of RRS was translated into Turkish by Erdur-Baker and Bugay (2012). The result of Confirmatory Factor Analyses indicated a good fit and Cronbach alpha level was .85 for the total scale; .77 for reflection subscale and .75 for brooding subscale (Erdur-Baker & Bugay, 2012). The researchers found high correlation between Turkish form of short RRS and long RRS (*r* = .70, *p* < .001). For Turkish version of the scale, a total score can be gathered between 10 to 40. Two

sample items from the scale are: "Why do I have problems other people don't have?" (Brooding Subscale) and "Write down what you are thinking about and analyze it" (Reflection Subscale).

3.3.5.1 Reliability and Construct Validity of Ruminative Response Scale for the Present Study

Within the scope of current study, based on the permission from the author, A. Bugay (see Appendix G), a Confirmatory Factor Analysis was conducted with the sample of the main study (n=715) to test whether the two-factor structure of Ruminative Response Scale was suitable for the current sample. After testing the assumptions for confirmatory factor analysis, CFA was conducted with LISREL 8.80 software with Maximum likelihood as the estimation method. The fitness of the model was tested by Chi square/df ratio, the goodness of fit index (GFI), comparative fit index (CFI) and the root mean square error of approximation (RMSEA). The results of goodness of fit indices showed a good fit: [Satorra Bentler χ^2 (34) = 99.44, *p* =.00; χ^2/df- *ratio* = 2.92; *GFI* = .95, *CFI* = .98, *RMSE*A = .05, *SRMR* = .05] in the present study according to fit indices criteria (Hu & Bentler, 1999; Kline, 2011b; Schumacker & Lomax, 2010).

Additionally, unstandardized, standardized parameter estimates, *t* values and explained variance were checked to confirm two-factor structure RRS and the results were presented in Table 3.9. The unstandardized factor loadings for reflection subscale were between .29 and .76 and for brooding subscale were between .47 and .57. The standardized factor loadings of items shown in Table 3.6 changed between .31 and .82 for reflection subscale and between .56 and .66 for brooding subscale of RRS. All *t* values of items in both reflection and brooding subscales were significant. For reflection subscale, *t* values changed from 7.88 to 25.08; for brooding subscale, they changed from 14.65 to 17.81. Moreover, the variance explained by each item ranged from 10 % to 67 % in reflection subscale and from 32 % to 44 % in brooding subscale as indicated in R^2 column. Even though item 5 and item 10 explained a small amount of variance, the *t* values were significant and standardized loadings

were above .30. Also, there was not any information about R^2 of items in the original adaptation study (Erdur-Baker & Bugay, 2012). Finally, it can be concluded that the standardized estimates, t values and explained variance supported two-factor structure of RRS with the sample of current study composing of preparatory school students of a state university.

Table 3.9

Unstandardized and Standardized Parameter Estimates, t Values and R^2 for RRS in the Present Study

Construct	Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
RRS Reflection	R2	.76	.82	25.08	.67
	R4	.72	.78	23.65	.62
	R5	.29	.31	7.88	.10
	R9	.72	.81	24.60	.65
	R10	.35	.39	10.05	.15
RRS Brooding	R1	.47	.57	15.01	.33
	R3	.49	.58	15.21	.34
	R6	.50	.56	14.65	.32
	R7	.49	.57	14.97	.33
	R8	.57	.66	17.81	.44

Note. All *t* values were significant. *p<.001*

In the present study, Cronbach Alpha was calculated to measure reliability of the scale. For the reflection subscale, internal consistency was found as .77 and for brooding subscale, it was found as .73. For the whole Ruminative Response Scale, Cronbach Alpha was gathered as .86 with the sample of 715 preparatory school students in the current study.

3.3.6 Acceptance and Action Questionnaire-II (AAQ-II) (Bond et al., 2011)

Acceptance and Action Questionnaire (AAQ) was originally developed by Hayes et al. (2004) to measure psychological inflexibility. The scale consists of 16 items on a

7-point scale (1: Never true to 7: Always true) in which lower scores indicate low level of inflexibility and higher scores show a higher level of psychological inflexibility. The need to revise the items in AAQ due to the low level of internal consistency, which could be caused by the complexity within the scale, wording or factorial structure (Bond et al., 2011; Hayes, et al., 2004) led to have a revision in the scale (Bond et al., 2011). Although primarily it was designed as a 10-item scale, final psychometric analysis yield a 7-item measurement of Acceptance and Action Questionnaire-II (AAQ-II) (Bond et al., 2011) with the same ranging of scores from 1 (never true) to 7 (always true). The scale has a single factor structure. For the scale, higher scores indicate a high level of psychological inflexibility. Bond et al. (2011) suggested considering higher level of psychological inflexibility for the scores higher than 24-28 range. The Cronbach's alpha was .84, the test-retest reliability was calculated as .81 and the correlation between the original and the revised version was strong (r = .82; (Bond et al., 2011). Two sample items were: "I worry about not being able to control my worries and feelings" and "It seems like most people are handling their lives better than I am".

AAQ-II with 7-items had better psychometric results than the original AAQ and 10-item AAQ-II (Bond et al., 2011). Then, the need to study the psychometric properties of AAQ-II with 7-items (Bond et al., 2011; Pennato, Berrocal, & Bernini, 2013) led researchers to adapt this version of the scale. AAQ-II with 7 items was translated into Turkish in the study conducted by Meunier et al. (2014). AAQ-II consists of 7 items on a 7-point Likert type scale ranging from 1 (never true) to 7 (always true). As in the original version, higher scores indicate high level of psychological inflexibility.

Confirmatory Factor Analyses for the Turkish adaptation of the study results indicated a good fit for the model: Satorra-Bentler $\chi2$ (13) = 35.42, p< .001, *CFI* = .97, *RMSEA* = .08, *SRMR* = .05) with modification between item 1 and item 4 (Meunier et al., 2014). Furthermore, the Turkish version of the scale pointed to a good internal consistency with Cronbach alpha level of .88 (Meunier et al., 2014).

The test-retest reliability was calculated as .78 after a period of two months (Meunier et al., 2014).

3.3.6.1 Reliability and Construct Validity of Acceptance and Action Questionnaire-II for the Present Study

After getting permission from the author, B. Meunier (see Appendix F), the one-factor structure of Acceptance and Action Questionnaire-II was confirmed with the main sample of present study. The results of CFA conducted by LISREL 8.80 software indicated acceptable fit indices for the scale as in the adaptation study: [Satorra Bentler χ^2 (12) = 38.61, p =.00; χ^2/df- ratio = 3.21; NFI = .98, CFI = .99, $RMSEA$ = .06, $SRMR$ = .03] in the present study according to fit indices criteria (Hu & Bentler, 1999; Kline, 2011b; Schumacker & Lomax, 2010). Then, unstandardized and standardized parameter estimates, t values and explained variance were checked within the scope of current study and the results were shown in Table 3.10.

Table 3.10

Unstandardized and Standardized Parameter Estimates, t Values and R^2 for AAQ-II in the Present Study

Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
AAQ1	1.16	.69	19.86	.48
AAQ2	1.33	.74	21.62	.55
AAQ3	1.40	.77	22.86	.59
AAQ4	1.28	.74	21.77	.55
AAQ5	1.35	.79	23.78	.62
AAQ6	1.34	.71	20.65	.50
AAQ7	1.10	.67	19.00	.44

Note. All t values were significant. p<.001

The unstandardized factor loadings of items changed between 1.10 and 1.40 and standardized factor loadings changed between .67 and .79 as indicated in Table 3.10. All t values of items were significant changing from 19.00 to 23.78. Moreover, the

variance explained by each item ranged from 44 % to 62 %. Finally, the standardized estimates, *t* values and explained variance supported one-factor structure AAQ-II with the sample of university students in the current study. In the present study, internal consistency coefficient was calculated as .90.

3.4   Data Collection Procedure

After the literature review for the study, first of all, necessary permission from METU Human Subjects Ethics Committee (HSEC, see Appendix A) was gathered to apply all scales in preparatory school. The Director of the Department of Basic English was informed about the process and necessary permission was obtained from Directorship as well. Then, the number of students in all preparatory school was gathered together with the number of classrooms in each language level. According to Director of Preparatory School, it could be difficult to administer the scales to the whole accessible population because some instructors might not be willing to apply the scales in their classrooms. As it was recommended by the directory, the scales could be administered in each level but not to the all classrooms. Consequently, it was aimed at reaching 1000 students, slightly more than 1/3 of the accessible population.

Considering the four different language levels and their different proportion in the whole population, it was necessary to include the same proportion of students from each language level by reflecting their total proportion in all accessible population. There were four language levels for students and by taking the proportion of levels in all accessible population, the number of students were defined for beginner, elementary, intermediate and upper-intermediate levels. The number of students defined by stratified sampling reflected the number of classrooms in which approximately 20 students were attending to the courses. After the determination of how many classrooms should attend to the present study to reach a total of 1000 students, instructors of the classrooms were informed about the study and the researcher asked their permission. In the next step, the instructors who accepted their students to take part in the study were informed both verbally and in a written form

about how to administer the instruments in the classrooms. A brief written information about reading the instructions especially for the definition of cognitive defusion was provided together with the instrument pack. Then, the instruments were distributed to classrooms by the instructors and they demanded voluntary student participation in their classrooms to apply the instruments.

For the pilot study, data were collected in four weeks in Spring 2015 via the online survey system of the university. Filling out the instruments lasted approximately 10 minutes in the pilot study. First of all, the survey instruments were created on the online system. A short link was constructed for the website in order for students to reach the website easily. Then, the survey instruments were announced to the all English Language preparatory school students via their student web page. Thus, voluntary students could easily reach the survey by clicking on the link. For the pilot study, online application was preferred rather than paper-pencil format because there was no time limitation and students could fill out the instruments whenever they wanted. Also, in this process, timing of instrumentation was taken into consideration since it was near the end of the term. It was thought that the instructors might not have found enough time to administer the scales in the classrooms.

For the main study, data collection time lasted one week in Fall 2015. The data were collected in paper-pencil format in classrooms by the English language instructors of the classes. The instructors who accepted to administer the instruments in their classrooms were informed about the study and all instructors administered the scales in their classrooms in the same week but in different days according to convenience of their schedule. The application of all instruments of the current study took approximately 20 minutes.

The data were collected in one-week period during class hours in paper-pencil format. For the present study, the time period for the data collection was quite crucial because the endogenous variable was test anxiety. Considering the literature, test anxiety might be influenced by other extraneous factors including the time of the

exam or being in the before, during or after period of an exam process (Bögels et al., 2010; Sarason, 1959; Spielberger, 1972). Therefore, the period for data collection was chosen on purpose by the researcher because the application of instruments according to exam time was important. For the present sample, there were three mid-term exams during the first semester. The researcher chose the time period between second and third mid-term because before the first mid-term or second mid-terms, students might not be familiar with the exam type of university (as they were newcomers at university and they might change their study habits from high school). Consequently, their test anxiety might include other extraneous factors like being unfamiliar with the exam beyond the importance attached to the exam.

Additionally, in test anxiety studies, the application time of the instruments should be carefully chosen regarding the time period between previous and following exams (Cassady, 2004a). It should be noted that immediately after the exam, students might feel relaxed as there are no exams in the near future. This relaxing feeling might prevent test anxiety for a short time and if test anxiety instrument is applied within this process, the results might be misleading. On the other hand, administering test anxiety instruments immediately before the next exam might not reflect the accurate results. Hence, the whole students can have a fair amount of test anxiety just before the exam and the difference between low and high anxious students might not be reflected accurately. Considering the information, the instruments in the current study were applied in one-week period which stated between two weeks after the second mid-term exam and two weeks before the third mid-term exam. Within this period, there remained one week for the application of the scales including no relaxation after the exam and no general test anxiety for all students.

During the application of instruments, participants were not asked to give any personal information and their answers would be used only for research and educational purposes within confidentiality borders and the study was on voluntary basis. It was underlined in Informed Consent Form and in the information part of

Demographic Information Form.

3.5   Description of Variables

In this part of section, exogenous variables, endogenous variable and mediator variable were described. The exogenous variables were rumination, self-forgiveness, perfectionistic thinking and cognitive defusion. The cognitive test anxiety was defined as the endogenous variable within this study. Finally, acceptance namely psychological flexibility was the mediator variable in the model because its indirect effect between exogenous variables and exogenous variable was tested.

3.5.1 Exogenous variables

The variables that were used to predict endogenous variable, that is, the independent variables influencing a model, were called exogenous variables. In the current study, rumination, self-forgiveness, perfectionism cognitions and cognitive defusion were exogenous variables.

- *Rumination* was measured by the short form of Ruminative Response Scale (RRS) (Erdur-Baker & Bugay, 2012) with 10 items on a 4-point scale. A total score can be calculated and the scores can range from 10 to 40.
- *Self-forgiveness* was measured by State Self-Forgiveness Scale (Wohl et al., 2008) with 17 items on a 4-point scale. A total score can be calculated and the scores can change between 17 and 68.
- *Perfectionism Cognitions* was measured by Perfectionism Cognitions Inventory (Flett et al., 1998) with 25 items on a 5-point scale. A total score can be calculated and the highest score can be 125 while the the lowest score is 25.
- *Cognitive Defusion* was measured by Drexel Defusion Scale (Forman et al., 2012) with 10 items on a 5-point scale. A total score can be calculated and the scores can range from 0 to 50.

3.5.2 Endogenous variable

- *Cognitive test anxiety* was defined as the endogenous variable, which is the dependent variable of the model. Cognitive test anxiety was measured by Cognitive Test Anxiety Scale-Revised Cassady and Finch (2015) with 23 items on a 4-point scale. A total score can be calculated and the scores can change between 23 to 92.

3.5.3 Mediator variable

- *Psychological flexibility* was identified as the mediator variable. Psychological flexibility was measured by Acceptance and Action Questionnaire-II (Bond et al., 2011) with 7 items on a 7-point scale. AAQ-II provides psychological inflexibility level of participants. Therefore, in the following analysis, psychological inflexibility will be reported and discussed. The score of psychological inflexibility can change between 7 to 49 and a total score can be calculated from the scale.

3.6 Data Analyses

In the present study, descriptive statistics were summarized, exploratory and confirmatory factor analysis were carried out and finally Structural Equation Modeling (SEM) was used to explain relationships based on the theoretically pre-defined model.

After data entry, missing data screening and assumptions for inferential statistics were checked. Then, descriptive statistics were reported for gender, age, language level and faculty for participants. Exploratory factor analysis was conducted to examine the factor structure of translated instruments. Then, confirmatory factor analyses were carried out to confirm the factor structure of instruments within this sample. Finally, structural equation modeling was used to test the model with hypothetical and unobserved variables leading to complicated relationships. SEM is used for examining a number of relationships between one or more exogenous and

endogenous variables which are continuous or discrete (Kline, 2011b). SEM can give information about causal relationships as in path analysis and works with observed variables of factors as in confirmatory analyses. In other words, SEM provides both measurement and theoretical models of latent variables with a more complex relationship. Latent variables are unobserved and can be in role of mediator, endogenous or exogenous variables in the model.

Data analysis for SEM was carried out in two ways: Firstly, the measurement model based on the theory was confirmed, then structural model was tested for proposed hypotheses (Kline, 2011b). Then, direct, indirect and total effects for variables were reported to explain the model clearly. During data analysis process, the data were entered into SPSS 24 software. For confirmatory factor analyses, measurement model testing and structural equation modeling, LISREL 8.80 was utilized. The results of all analyses were reported in the next chapter.

3.7   Limitations of the Study

Together with its strengths, there were possible limitations in the current study. Therefore, the findings should be interpreted in the context of the limitations. The first limitation was related to the generalizability of the results. The sample of the present study was composed of only English Language Preparatory School students of a state university in Turkey. The results cannot be generalized into college students in other class levels of universities. Because, English Language Preparatory School students follow an English Language curriculum, and take a proficiency exam at the end of the academic year. If they fail in the exam, they have to repeat the preparatory school in the next year. However, in undergraduate education, if a student fails in a course, he/she can take the course again. Therefore, the meaning students attach to the proficiency exam and the anxiety they experience could be different in the English Language Preparatory School than the upper classes of undergraduate education such as for freshman, sophomore, junior or senior students.

Furthermore, the results cannot be generalized to other preparatory school students who have two-semester English preparatory school at the beginning of college years but do not use English as the medium of instruction in the university. Because these students take education in Turkish language after attending one-year English preparatory school and they do not use English in their undergraduate study. Thus, they might not attach high importance to their English proficiency exam in the preparatory school as much as the participants of the current study. Overall, the results reflected the model of cognitive test anxiety and its related variables only with the current sample in the study and the findings cannot be generalized to other samples.

Moreover, as English Language Preparatory School Students had an intensive English learning program, their test anxiety might be based on only the proficiency exam or it might be specific only to this year. Therefore, the results should be handled with caution as a way of providing suggestion about test anxiety related to proficiency exam but not to the test anxiety related to other undergraduate courses. Additionally, in the present study, English language anxiety was not measured and controlled as a separate variable. However, English language anxiety might be a confounding variable for the participants because in the literature, it was indicated that learning a foreign language anxiety should be reduced to get better achievement (Yoğurtçu & Yoğurtçu, 2013).

Another limitation was about the application of the instruments. As the time for application of the instruments was limited, the instructors of the classes applied the scales in the classrooms. In order to make the procedure clear and structured, the researcher organized a well-structured written instruction for the application and made sure that all instruments were applied in the same week. Also, the instructors were informed about administering the instruments not before or after pop-quizzes. Even though the researcher took all the precautions to conduct a standardized administration, how the process went through could not be controlled in each class.

In the current study, the comparison between different language levels could not be done due to number of students in each level which is not enough to test a structural equation modeling. This could be considered as another limitation of the study.

Finally, the measurements which were used to gather information were based on self-report. That is, the participants could have filled the forms different than their actual response for several reasons such as social desirability. Therefore, the results were interpreted by considering that their responses were actual honest responses.

CHAPTER 4

RESULTS

This chapter presents the results of main statistical analyses in two parts. Firstly, preliminary analyses were reported including missing data, checking for outliers, normality testing, linearity, homoscedasticity and multicollinearity assumptions, descriptive statistics and bivariate correlations among the study variables. Secondly, the measurement model is reported before testing the structural model in order to show the validity of measurements and finally the results of structural equation model are presented to examine the hypothetical relationships between variables.

4.1 Preliminary Analyses

Before the main analyses, some preliminary analyses were conducted for the accuracy of further analyses. The data were screened for missing values and outliers in data set were checked via SPSS 24. Descriptive statistics of variables were reported. Then, linearity, homoscedasticity and multicollinearity assumptions were checked.

4.1.1   Missing Data

As the first step in preliminary analysis, data entry was controlled for any incorrect filled items in SPSS. Totally, 23 cases included missing value in one of the parts of the measures. Among them, there were 3 cases in which the last scale was empty and they were removed from the study. Also, there were 3 cases with either gender, age or department field was empty. There were other 17 cases in which there were one or

more missing items in data set for the items of instruments. Then, the data were tested with missing and without missing values. The results of Little's MCAR test (Little, 1992) indicated a random pattern with no certain responses unfilled and there was no significant change in hypothesized structural model. So, the listwise deletion method was used in order to yield the least biased estimates. Also, the structural equation modeling is very sensitive to missing values (Stevens, 2009). LISREL program does not give results when there is a missing item in the data set. As the number of total cases including any missing items was less than 5 %, cases with missing items were removed from the study. Therefore, there was no need to conduct missing value analysis for the present study.

4.1.2 Descriptive Statistics

Descriptive statistics were reported for exogenous, mediator and endogenous variables together with the lowest and highest scores that could be taken from the instruments in Table 4.1. Moreover, the minimum and maximum scores of participants were reported. To start with the endogenous variable, the means score of cognitive test anxiety was reported as 45.74 (*SD*=11.95). The participants took minimum 25, maximum 92 points from cognitive test anxiety. The mean score for rumination as one of the exogenous variable was found to be 21.20 with a standard deviation of 5.53. Participants got 10 points as minimum and 38 points as maximum from rumination. Among other exogenous variables, self-forgiveness was reported with a mean of 48.77 (*SD*=9.60); perfectionism cognitions with a mean of 69.20 (*SD*=20.62); and cognitive defusion with a mean of 24.85 (*SD*=8.14). Participants got between 17-68 in self-forgiveness, 25-121 from perfectionism cognitions and 0-47 from cognitive defusion as minimum and maximum points respectively. Finally, in the current study, psychological flexibility was measured and reported in accordance with Acceptance and Action Questionnaire-II (see Chapter 3) through the result section of the study. Psychological inflexibility, as having an indirect effect on the relationship between endogenous and exogenous variables, was reported with a mean of 21.10 (*SD*=9.62). The minimum and maximum points taken from

psychological inflexibility changed between 7 and 49.

Table 4.1

Means and Standard Deviations of Variables

	Score Range	*Min.*	*Max.*	*M*	*SD*
Cognitive Test Anxiety	23-92	25	92	45.74	11.95
Psychological Inflexibility	7-49	7	49	21.10	9.62
Rumination	10-40	10	38	21.20	5.53
Self-forgiveness	17-68	17	68	48.77	9.60
Perfectionism Cognitions	25-125	25	121	69.20	20.62
Cognitive Defusion	0-50	0	47	24.85	8.14

Cassady and Johnson (2002) defined the score range of 27-61 as the low cognitive test anxiety. Accordingly, the participants of the present study had low level of cognitive test anxiety. Likewise, Bozkurt et al. (2017) found the cognitive test anxiety of high school students as 51.69 with this instrument. That is, high school students were experiencing low level of cognitive test anxiety. In line with the findings of the present study, Erdur-Baker and Bugay (2012) stated that the mean of rumination level in college students ranged between 21-22. Additionally, in the current study, the mean of self-forgiveness was 2.87. Similarly, Wenzel, Woodyatt, and Hedrick (2012) calculated the mean of self-forgiveness level of college students as 3.46. In terms of perfectionism cognitions, Flett et al. (1998) found the mean of college students as 43.08. Furthermore, Forman et al. (2012) indicated the mean of cognitive defusion among college students as 27.30 similar to the present study. Finally, the mean of graduate and undergraduate students' psychological inflexibility was calculated as 20.26 (Meunier et al., 2014), which was also close to the findings of the current study.

4.1.3 Outliers

Outliers should be checked due to their possible effects over the results of the data. In the current study, univariate and multivariate outliers were detected. For univariate outliers, z-scores were used with a range between +3.29 and -3.29 (Tabachnick & Fidell, 2013). There were no cases exceeding these limits. The results of box plot indicated some outliers for variables. In Ruminative Response Scale, one case; in Action and Acceptance Questionnaire, four cases; in Cognitive Test Anxiety Scale, seven cases; in Drexel Defusion Scale, seven cases; for negative subscale of State Self-Forgiveness Scale, six cases were defined as outliers. For the multivariate outliers, Mahalanobis distances were calculated and the critical $\chi2$ value was 22.46 for $df = 6$, $p < .001$ (Tabachnick & Fidell, 2013). The number of outliers exceeding critical value were four. It was detected that there were four cases contradicting in both univariate and multivariate normality. Therefore, the researcher created two data file with including and excluding outliers for the overall model testing. Overall, the analysis indicated that excluding outliers did not change the model results and they were kept in the data set.

4.1.4 Normality

Normality assumption assumes that the data has a normal distribution and it was checked via skewness and kurtosis values, histograms and Q-Q plots. In the current study, SPSS 24 was used to check normality assumption. The results of skewness and kurtosis indicated values which were close to zero mean a belly-shaped distribution indicating normal distribution of sample (Muthen & Kaplan, 1992). In the current study, all skewness and kurtosis values for variables were between +1 and -1, which showed a normal symmetrical distribution (see Table 4.2). According to Field (2009), values between +3 and -3 show normal distribution. Therefore, as suggested by Kline (2011b), Maximum Likelihood estimation which is the most commonly used estimation method in SEM (Savalei, 2008), was used for further analysis.

In the current study, Multivariate normality was checked with Mardia's coefficient test (Tabachnick & Fidell, 2013). The results of Mardia's test was significant (p <.05) and indicated a non-normal distribution for the variables. Nevitt and Hancock (2001) mentioned that researchers are often faced with violation of multivariate normality assumption together with insufficient sample size. In addition, Bishara and Hittner (2015) point that in social studies where educational and psychological data are studied, it is difficult to find a normally distributed data. Therefore, necessary further analyses were conducted to test the hypotheses for non-normal distribution.

Table 4.2

Skewness and Kurtosis Values for Scales

	Skewness	SE	Kurtosis	SE
Cognitive Test Anxiety	.79	.09	.49	.18
Psychological Inflexibility	.61	.09	-.25	.18
Rumination	.30	.09	-.40	.18
Self-forgiveness	-.55	.09	.25	.18
Perfectionism Cognitions	.21	.09	-.71	.18
Cognitive Defusion	.09	.09	-.12	.18

In order to handle the violation of multivariate normality, Robust Maximum Likelihood was used (Kline, 2011a). In SEM, there are some estimation methods like Weighted Least Squares and Generalized Least Squares when multivariate normality is not met. However, sample size is very important for using these estimation methods. According to Olsson, Foss, Troye and Howell (2000), the sample size around 1000-2000 was needed in order to get accurate results as gathered in Maximum Likelihood. However, as the sample size of the present study is not enough to continue with any of these methods, Asymptotic Covariance Matrix as a way of going with robust maximum likelihood (Kline, 2011a; Savalei, 2008) was

used. However, according to the rule of thumb suggested by Diamantopoulos and Siguaw (2000), the sample size should be more than the criteria (k(k-1)/2) in which *k* means the number of variables. Based on this rule, it is not possible to calculate Asymptotic Covariance Matrix for the current data set. Therefore, in order to decrease the number of variables, one of the methods offered to take Asymptotic Covariance Matrix is to use item parceling (Bandalos, 2002).

Bandalos (2002) stated that item parceling has been used commonly as a way of getting one score for two or more items by calculating their total or average scores. According to Kline (2011b), by using item parceling the number of variables is decreased so that the data set can be workable. Item parceling is commonly used in case of non-normal data and unidimensional scales (Bandalos, 2002). Thompson and Melancon (1996) found better model fit results by using item parceling for non-normal data because they came up with data showing normal distribution after using item parceling.

It is crucial to mention that for multidimensional scales, item parceling is not a commonly suggested method to be used (Little, Cunningham, Shahar, & Widaman, 2002). The item parceling has some advantages while at the same time it has disadvantages as discussed extensively by Little et al. (2002). By considering the advantage of unidimensional structure of most of scales and in order to have Asymptotic covariance matrix, item parceling was conducted in the present study for the following measures: Cognitive Test Anxiety Scale-Revised, Perfectionism Cognitions Inventory and Drexel Defusion Scale. As State Self-Forgiveness Scale and Ruminative Response Scale had two-factor structure, they were parceled into two. For the unidimensional scales, parceling was carried out according to item-to-construct in which factor loadings of opposite items were combined in a converted order (Little et al., 2002). There were five parcels for Cognitive Test Anxiety Scale-Revised and Perfectionism Cognitions Inventory; two parcels for Drexel Defusion Scale; and two parcels for Ruminative Response Scale and State Self-Forgiveness Scale; and Acceptance and Action Questionnaire-II was not parceled. Overall, there

were twenty-three observed variables to be studied in the present study.

4.1.5 Linearity and Homoscedasticity

Linearity assumption was tested via scatterplots and there was no indication of violation of linearity assumption. In addition, the histograms and Q-Q plots were visually checked. The histograms and Q-Q plots indicated the normal distribution of the data. Although the histogram for cognitive test anxiety seemed a bit positively skewed and the sub-scale of negative perception of self-forgiveness was negatively skewed, the other indicators of normality assumption proved the normality of distribution assumption. Scatterplot for the endogenous variable was given in Figure 4.1.
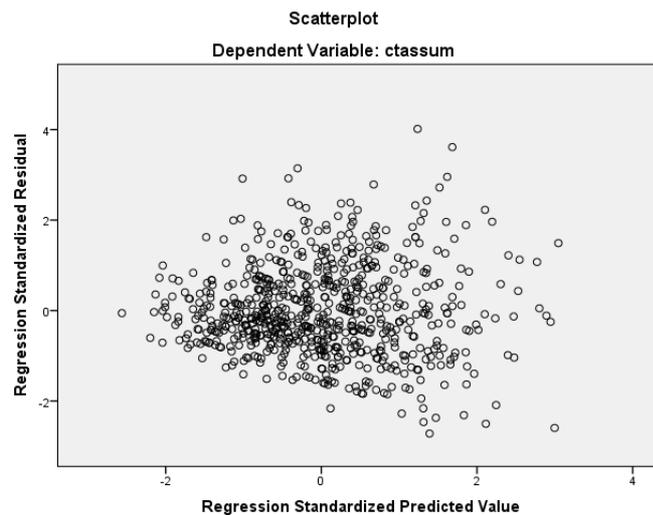
Figure 4.1 - Scatterplot for Cognitive Test Anxiety

4.1.6 Multicollinearity

Multicollinearity assumption assumes that there is no high relation between variables. The bivariate correlations (Pearson) should not exceed .90 (Tabachnick &

Fidell, 2013). In the current study, bivariate correlations ranged between $r=.21$ and $r=.60$ as indicated in Table 4.3. In addition, tolerance and VIF values should be checked for multicollinearity. According to Kline (2011b, p. 53), tolerances should be higher than .10 and VIF values should be less than 10. As the highest VIF value was 1.97 and the lowest tolerance value was .51, multicollinearity assumption was satisfied in the present study.

Table 4.3

Bivariate Correlations

	Cognitive Test Anxiety	Rumination	Psychological Inflexibility	Self-forgiveness	Perfectionism Cognitions	Cognitive Defusion
Cognitive Test Anxiety	-					
Rumination	$.43^{**}$	-				
Psychological Inflexibility	$.48^{**}$	$.60^{**}$	-			
Self-forgiveness	$-.31^{**}$	$-.36^{**}$	$-.42^{**}$	-		
Perfectionism Cognitions	$.31^{**}$	$.33^{**}$	$.34^{**}$	$-.21^{**}$	-	
Cognitive Defusion	$-.37^{**}$	$-.37^{**}$	$-.47^{**}$	$.33^{**}$	$-.04$	-

$**p<.01$

Overall, these results showed that normality assumption was not violated for the present study. However, multivariate normality assumption is critical for structural equation modeling. Therefore, multivariate normality was checked before conducting the further model testing analysis.

4.2 Model Testing

The aim of the study was to find the role of rumination, self-forgiveness, perfectionism cognitions, cognitive defusion over cognitive test anxiety through the indirect effect of psychological flexibility. First of all, the measurement equivalence of latent variables was analyzed with measurement model. Then, the structural model was tested by structural equation modeling. Finally, to examine the total, direct and indirect effects, further analyses were conducted in the followed section.

The SEM results were reported under the light of fit indices of the measurement and structural model. The related fit indices included chi-square (χ^2) test, chi-square/ degrees of freedom ratio (χ^2/df-ratio), Root Mean Square of Error of Approximation (RMSEA), The Bentler Comparative Fit Index (CFI), The Normed Fit Index (NFI), The goodness of fit index (GFI) and Standardized Root Mean Square Residual (SRMR). As one of the most important fit indices, chi square test divided by degrees of freedom (χ^2/df) value was reported. However, as the data did not show multivariate normality, Robust Maximum Likelihood estimation was conducted instead of Maximum Likelihood and Satorra-Bentler Chi-square value was gathered via Asymptotic Covariance Matrix and reported in the current study.

In order to interpret the results, there are cut-off values for fit indices to be given first. The results were presented based on the fit indices suggested in this section. It is required to have a small and non-significant Chi-square value (Kline, 2011b). However, as Chi-square is sensitive to sample size, it is suggested that chi-square/df ratio should be less than 5 (Wheaton et al., 1977). For the value for RMSEA, showing the fit of sample statistics with the population, values between .05 and .08 show a close fit (Schumacker & Lomax, 2010). Also, Browne and Cudeck (1993) suggest that RMSEA value lower than .05 shows a good fit, and RMSEA value lower than .08 points to a reasonable fit. For CFI indices, Hu and Bentler (1999) indicate a value of .95 or higher is good; NFI indices are offered to be higher than .95 for a perfect fit; GFI value higher than .90 is taken as a good fit; and for SRMR value, ranging from 0 to 1 where smaller values indicate a better fit, they suggest a

value less than .08 as the acceptable point. A clear viewpoint for cut-off values (Hu & Bentler, 1999; Kline, 2011b; Schumacker & Lomax, 2010) were provided in Table 4.4. Under the light of these cut-off values, further results of the measurement model and structural model were presented in the next part.

Table 4.4

Cut-off Values for Measurement and Structural Model

	Perfect Fit	*Acceptable Fit*
χ^2/df	$0 \leq \chi^2/df \leq 3$	$2 \leq \chi^2/df \leq 5$
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$
CFI	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.95$
GFI	$0.90 \leq GFI \geq 1.00$	$0.85 \leq GFI \leq 0.90$
SRMR	$0 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.08$

4.2.1 Model Description

Structural equation modeling shows the relationship between observed and latent variables together with estimations and variances (Jöreskog & Sörbom, 1996). In this regard, there were 6 latent and 23 observed variables as a result of item parceling in the current study. All observed variables were shown with their latent indicators in Table 4.5.

Table 4.5

Latent and Observed Variables

Latent Variables	*Observed Variables*
Cognitive Test Anxiety	CTA-P1
	CTA-P2
	CTA-P3
	CTA-P4
	CTA-P5
Psychological Inflexibility	PI-1
	PI-2
	PI-3
	PI-4
	PI-5
	PI-6
	PI-7
Rumination	RM-P1
	RM-P2
Self-forgiveness	SF-P1
	SF-P2
Perfectionism Cognitions	PC-P1
	PC-P2
	PC-P3
	PC-P4
	PC-P5
Cognitive Defusion	CD-P1
	CD-P2

4.2.2 Measurement Model

The measurement model was tested in order to see whether the observed variables were related to latent variables or to what extent latent variables were represented by observed variables (Kline, 2011b). Testing measurement model is a required step for structural equation modeling because it also includes the confirmatory factor analysis for the measurements. Latent variables were given without any possible relationship with other variables so that correlations within latent variables were defined.

For measurement model of latent variables (cognitive test anxiety, self-forgiveness, rumination, cognitive defusion, perfectionism cognitions, psychological inflexibility), Satorra-Bentler Chi-square/df value, RMSEA, CFI, NFI, GFI and SRMR values were reported. According to the results of the measurement model showed the fit indices for all the latent variables as [Satorra-Bentler χ^2 (214) = 702.96, $p = .00$; χ^2/df- ratio = 3.28; RMSEA = .057; CFI = .98; NFI= .97; GFI = .91; SRMR = .05]. According to cut-off values provided by Hu and Bentler (1999), Kline (2011b), and Schumacker and Lomax (2010), it can be concluded that the measurement model for these six latent variables showed a good fit (Table 4.6). The results also provided critical sample size for the data and it showed that Critical N were equal to 270, which was appropriate for the number of current sample size ($n = 715$). The results of measurement model were provided in Figure 4.2.

Table 4.6

Fit Indices of Measurement Model

Model	χ^2/df	NFI	SRMR	CFI	RMSEA	GFI
Measurement Model	3.28	.97	.05	.98	.057	.91
Cut-off Values	≤ 5	$\geq .90$	$\leq .08$	$\geq .95$	$\leq .08$	$\geq .85$
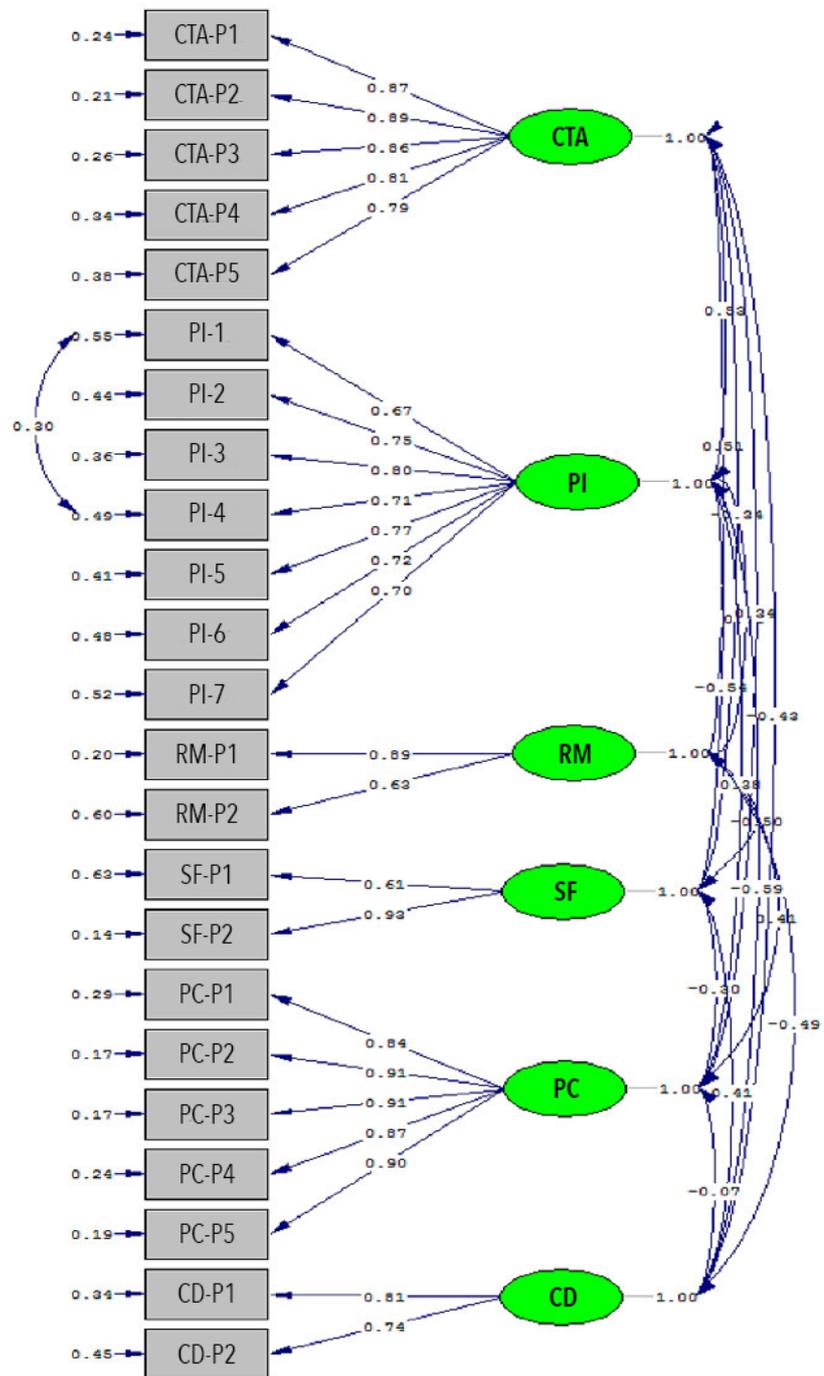
Satorra-Bentler Chi-Square = 702.96, df =214, P-value = 0.0000, RMSEA = .057.

Note: For clarity of presentation, Rumination=RM, Self-forgiveness=SF, Perfectionism Cognitions=PC, Cognitive Defusion=CD, Psychological Inflexibility=PI, and Cognitive Test Anxiety=CTA.

Figure 4.2 - Measurement Model

Table 4.7

The Unstandardized, Standardized Parameter Estimates, t Values and R^2 for Measurement Model

Construct	Item	Unstandardized Factor Loadings	Standardized Factor Loadings	t	R^2
Cognitive Test Anxiety	CTA-P1	.51	.87	27.28	.76
	CTA-P2	.47	.89	25.48	.79
	CTA-P3	.45	.86	22.52	.74
	CTA-P4	.45	.81	26.47	.66
	CTA-P5	.39	.79	22.43	.62
Psychological Inflexibility	PI-1	1.12	.67	19.65	.45
	PI-2	1.34	.75	24.78	.56
	PI-3	1.45	.80	29.23	.64
	PI-4	1.23	.71	20.31	.51
	PI-5	1.33	.77	24.72	.59
	PI-6	1.36	.72	24.52	.52
	PI-7	1.15	.70	19.34	.48
Rumination	RM-P1	.53	.89	23.53	.80
	RM-P2	.42	.63	17.06	.40
State Self Forgiveness	SF-P1	.39	.61	15.42	.37
	SF-P2	.59	.93	19.12	.86
Perfectionism Cognitions	PC-P1	.79	.84	33.09	.71
	PC-P2	.85	.91	37.72	.83
	PC-P3	.83	.91	37.53	.83
	PC-P4	.75	.87	33.09	.76
	PC-P5	.78	.90	35.89	.81
Cognitive Defusion	CD-P1	.74	.81	22.40	.66
	CD-P2	.67	.74	18.74	.55

Note. All t values were significant. $p<.001$

Besides standardized estimates given in previous figure, the unstandardized parameter estimates, T values and explained variance of each parcel were analyzed for the measurement model and the results were presented in Table 4.7.

As presented in Table 4.7, the unstandardized factor loadings for all variables changed between .39 and 1.45. Also, standardized factor loadings of variables were between .61 and .93 and all T values for items were found significant changing from 15.42 and 37.72. Moreover, the variance explained by each variable ranged from 37 % to 86 % as indicated in R^2 column. Therefore, it can be concluded that the indices and overall measurement model was accepted.

4.2.3   Structural Model

After the relationships between observed and latent variables were defined, the hypothesized structural model was tested. The structural model differed from measurement model in defining the relationships and the way of relationships. The model, which aimed to answer the main research question in the current study, included exogenous, endogenous and mediator variable. The main hypothesis of the study was that rumination, self-forgiveness, perfectionism cognitions and cognitive defusion predicted cognitive test anxiety through the indirect effect of psychological inflexibility. The results of the structural model showed that Satorra-Bentler χ^2 (215) = 915.23, $p = .00$; χ^2/df- $ratio = 4.25$; $RMSEA = .06$; $CFI = .98$; $NFI = .97$; $GFI = .90$; $SRMR = .06$. The structural model indicated a good fit according to fit indices. Also, the Critical N was defined as 250.98 showing the sufficiency of sample size ($n = 715$). Overall, the hypothesized model was tested and the results of structural equation model indicated a good fit with a modification between the PI-1 and PI-4. In the adaptation study of AAQ-II, Meunier et al. (2014) found a better fit with the modification between item 1 and item 4. Likewise, in the current study, modification of error terms between PI-1 and PI-4 was implemented. The fit indices of the structural model were provided in Table 4.8 and the results of structural model were illustrated in Figure 4.3.

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Table 4.8

Fit Indices of Structural Model

Model	χ^2/df	NFI	SRMR	CFI	RMSEA	GFI
Structural Model	4.25	.97	.06	.98	.06	.90
Cut-off Values	≤ 5	≥ .90	≤ .08	≥ .95	≤ .08	≥ .85

According to the comparison of fit indices of structural model with the cut-off values provided in Table 4.8, the model was accepted with good fit indices, standardized values as indicated in Figure 4.3 and T-values in Figure 4.4. The results indicated statistically significance of all paths except the path between self-forgiveness and cognitive test anxiety; regression coefficients ranging from .12 to .49. While the relationship between rumination-psychological inflexibility ($r=.49$, $p<.01$) and perfectionistic cognitions-psychological inflexibility ($r=.12$, $p<.01$) was positive; the relationship between the self-forgiveness-psychological inflexibility ($r=-.13$, $p<.01$) and cognitive defusion-psychological inflexibility ($r=-.27$, $p<.01$) was negative. Moreover, the relationship between psychological inflexibility-cognitive test anxiety was positive ($r=.15$, $p<.01$). Additionally, the relationships between rumination-cognitive test anxiety ($r=.22$), perfectionism cognitions-cognitive test anxiety ($r=.18$) and cognitive defusion-cognitive test anxiety ($r=.21$, $p<.01$) were all positive. As t value of the relationship between self-forgiveness and cognitive defusion ($r=-.01$, $p>.01$) was not significant, it was not a predictor of cognitive test anxiety.

Overall, the results of structural model (shown in Figure 4.3) indicated an acceptable mediocre fit and significant t values for the hypothesized model except for self-forgiveness. That is, rumination, cognitive defusion, and perfectionistic cognitions were predictors of cognitive test anxiety through the indirect effect of psychological flexibility. All R^2 values for the structural equations were calculated. According to the squared multiple correlations for structural equations, rumination, perfectionism

cognitions and cognitive defusion accounted for 36 % of variance in the cognitive test anxiety scores and rumination, self-forgiveness, perfectionism cognitions and cognitive defusion accounted for 63 % of variance in psychological flexibility scores.
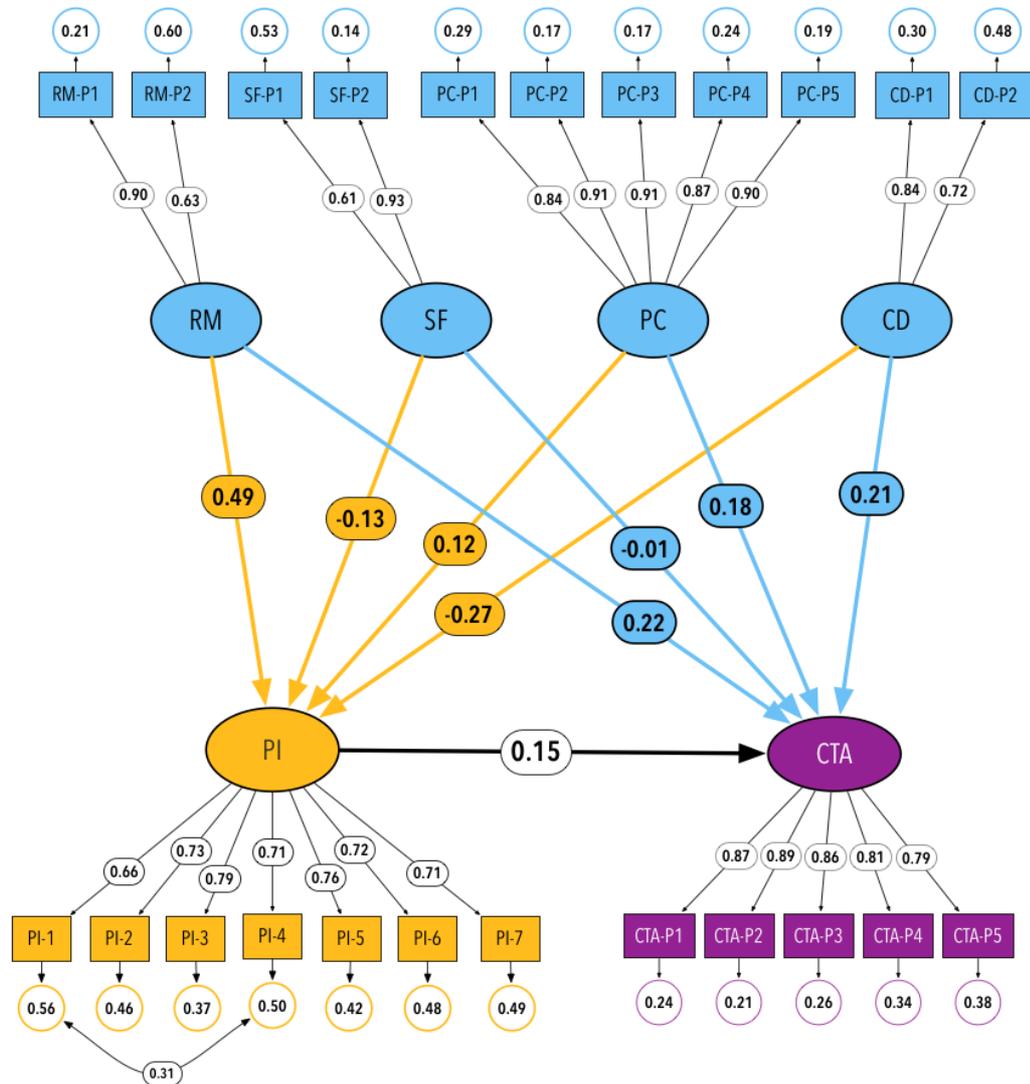
Satorra Bentler Chi-square=915.23, df=215, P-value=0.0000, RMSEA=0.06

Note: For clarity of presentation, Rumination=RM, Self-forgiveness=SF, Perfectionism Cognitions=PC, Cognitive Defusion=CD, Psychological Inflexibility=PI, and Cognitive Test Anxiety=CTA.

Figure 4.3 - Structural Model
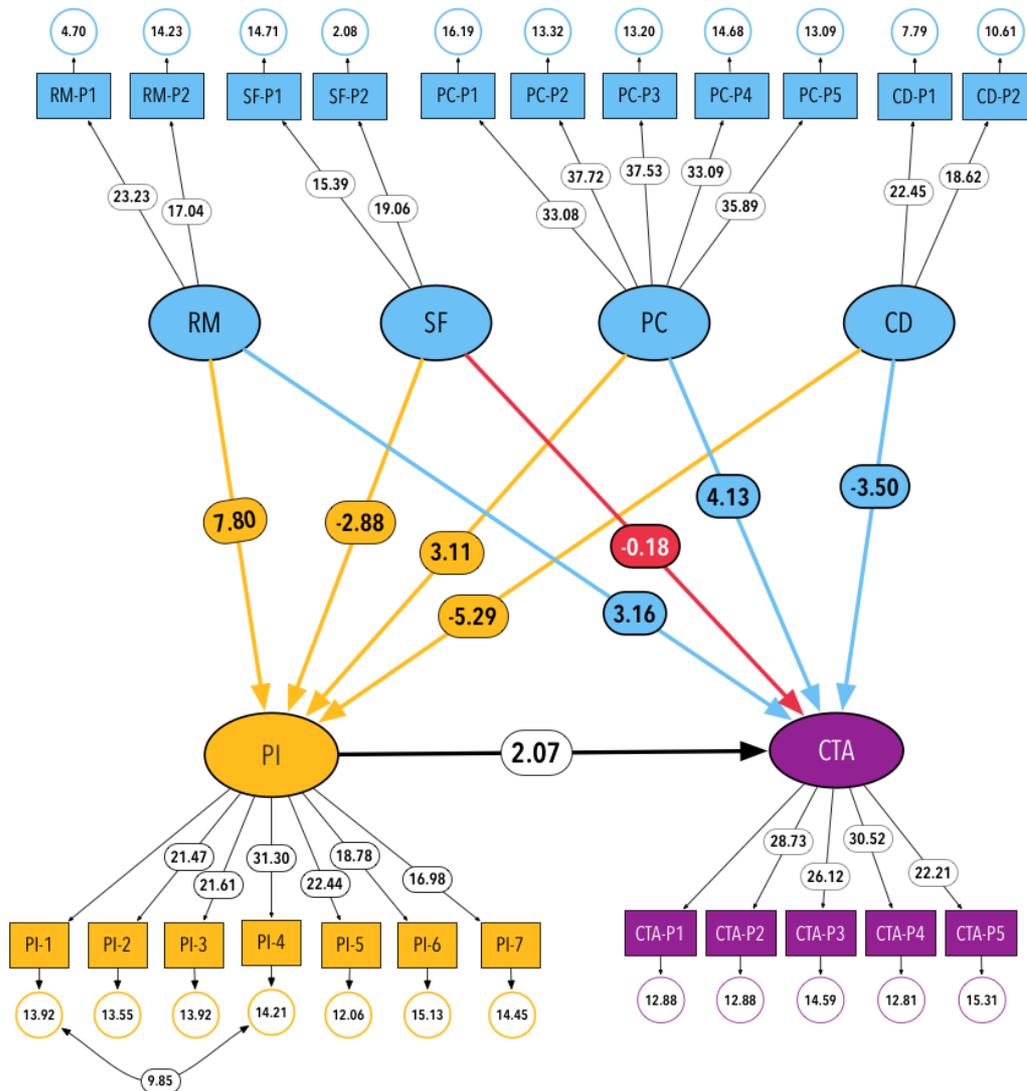
Note: For clarity of presentation, Rumination=RM, Self-forgiveness=SF, Perfectionism Cognitions=PC, Cognitive Defusion=CD, Psychological Inflexibility=PI, and Cognitive Test Anxiety=CTA.

Figure 4.4 - T Values of Structural Model

4.2.4 Direct, Indirect and Total Relationships

The further analysis besides measuring structural model included determining the direct and indirect relationships between variables (exogenous, endogenous and mediator variables). In order to confirm the statistical significance of rumination,

self-forgiveness, cognitive defusion and perfectionism over test anxiety through the effect of psychological inflexibility, all direct, indirect and total effects were calculated.

According to the results, first of all direct effects between exogenous variables and mediator variable were reported. The results of analysis indicated that all direct effects from exogenous variables to mediator variable were statistically significant. That is, direct relationships between rumination-psychological inflexibility, self-forgiveness-psychological inflexibility, cognitive defusion-psychological inflexibility, perfectionistic cognitions-psychological inflexibility and psychological inflexibility-cognitive test anxiety were significant. Also, direct relationships between rumination-cognitive test anxiety, cognitive defusion-cognitive test anxiety and perfectionism cognitions-cognitive test anxiety were significant. However, the direct relationship between self-forgiveness and cognitive test anxiety was not statistically significant (see Figure 4.5).
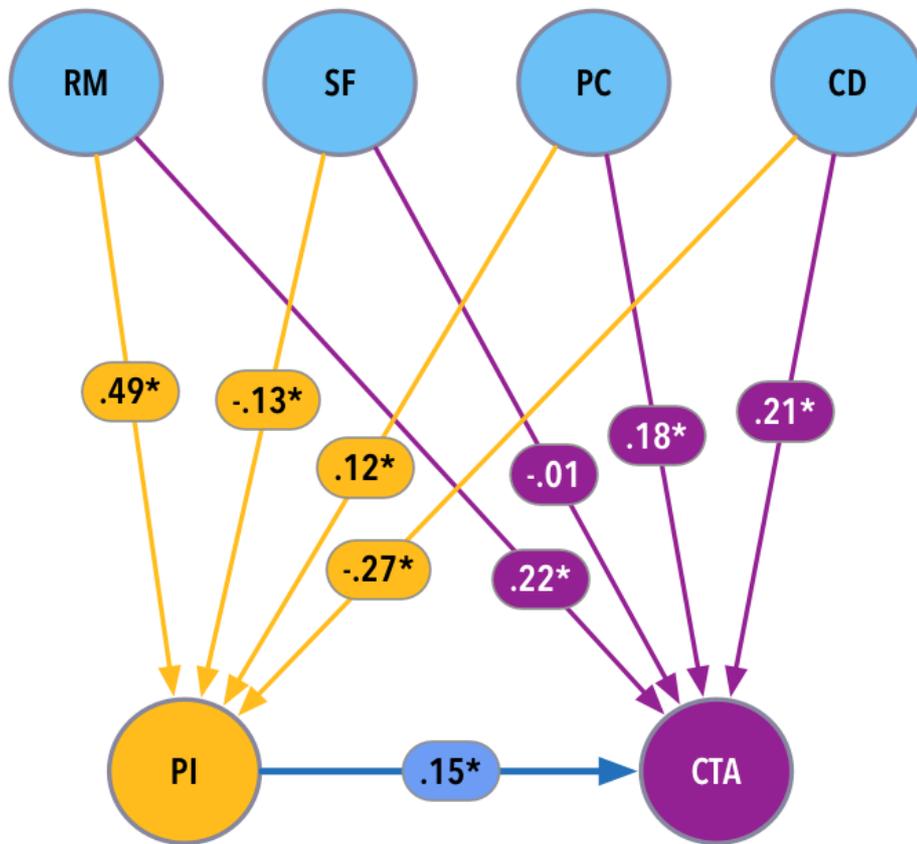
Note= β were reported, *p<.01

Figure 4.5 - Model for Direct Effects

To put it more explicitly, direct effects of rumination (*β*=.49, *p*<.01), self-forgiveness (*β*=-.13, *p*<.01), perfectionistic cognitions (*β*=.12, *p*<.01) and cognitive defusion (*β*=-.27, *p*<.01) over psychological inflexibility were significant (see Table 4.9). According to results, rumination and perfectionistic cognitions had a positive relationship while self-forgiveness and cognitive defusion had a negative relationship with psychological inflexibility. That is, people who had high rumination level and high perfectionistic cognitions had high level of psychological inflexibility. On the other hand, while people had low level of self-forgiveness and cognitive defusion, they were more prone to have psychological inflexibility. Additionally, the direct effect of psychological inflexibility (*β*=.15, *p*<.01) on cognitive test anxiety was

statistically significant and in positive direction, which means people who had high psychological inflexibility had high tendency to have cognitive test anxiety.

Table 4.9

Direct, Indirect and Total Effects

Criterion	*Predictor*	*Standardized Values (β)*		
		Total	Direct	Indirect
Cognitive Test Anxiety	Rumination	.26*	.22*	.04*
	Self-Forgiveness	-.03	-.01	-.02
	Perfectionism Cognitions	.20*	.18*	.02*
	Cognitive Defusion	-.25*	-.21*	-.04*
	Psychological Inflexibility	.15*	.15*	-
Psychological Inflexibility	Rumination	.49*	.49*	-
	Self-Forgiveness	-.13*	-.13*	-
	Perfectionism Cognitions	.12*	.12*	-
	Cognitive Defusion	-.27*	-.27*	-

*p<.01

The next step included the direct relationships between exogenous variables and endogenous variable. The results showed that the direct relationship between rumination-cognitive test anxiety (*β*=.22, *p*<.01), perfectionism cognitions-cognitive test anxiety (*β*=.18, *p*<.01) and cognitive defusion-cognitive test anxiety (*β*=-.21, *p*<.01) were statistically significant while the direct relationship between self-forgiveness and cognitive test anxiety were not significant (*β*=-.01, *p*>.01) (see Table 4.9). That is, the direct relationships between all exogenous variables except self-forgiveness (rumination, cognitive defusion, perfectionistic cognitions) and cognitive test anxiety were significant. There was not a significant relationship between self-

forgiveness and cognitive test anxiety. The results indicated that only cognitive defusion had a negative relationship with cognitive test anxiety, which means people who had high rumination and perfectionistic cognitions were having high level of cognitive test anxiety while people who could defuse their thoughts from actions had low level of cognitive test anxiety as an indication of negative relationship between defusion and cognitive test anxiety.

For indirect effects, all relationships between exogenous and endogenous variable over the effect of mediator variable were statistically significant except for self-forgiveness. In particular, indirect relationship between rumination-cognitive test anxiety (β=.04, p<.01), perfectionistic cognitions-cognitive test anxiety (β=.02, p<.01) and cognitive defusion-cognitive test anxiety (β=-.04, p<.01) were statistically significant with small effects. However, the indirect effect of self-forgiveness on cognitive test anxiety was not statistically significant (β=-.02, p>.01) as happened in its non-significant direct effect over cognitive test anxiety. The results indicated that psychological inflexibility had an indirect effect between rumination, perfectionism cognitions, defusion and cognitive test anxiety.

Overall, it can be concluded that while self-forgiveness had a direct effect over psychological inflexibility of participants, it did not have an effect over cognitive test anxiety both directly and indirectly. Hence, there was not a statistically significant relationship between self-forgiveness on cognitive test anxiety while it had a significant effect on psychological inflexibility.

The total effects for the overall model indicated that all of the effects except for self-forgiveness were statistically significant; rumination (β=.26, p<.01), perfectionism cognitions (β=.20, p<.01), cognitive defusion (β=-.25, p<.01) and psychological inflexibility (β=.15, p<.01). There was a positive relationship between rumination and cognitive test anxiety through the indirect effect of psychological inflexibility. That is, as participants had ruminative thoughts, their psychological inflexibility increased and they felt cognitive test anxiety. Moreover, there was a positive

relationship between perfectionism cognitions and cognitive test anxiety through the indirect effect of psychological inflexibility. It means that the more students had perfectionistic cognitions, they felt psychologically inflexible and had the cognitive test anxiety much. For cognitive defusion, there was an overall negative relationship, which means as students could defuse their thoughts from actions, they had less psychological inflexibility and had less cognitive test anxiety. The total effect of self-forgiveness was not significant (β=-.03, p>.01) in the model (see Table 4.9).

Under the light of all information, direct and indirect standardized coefficients of hypothesized model indicated that psychological inflexibility had an indirect effect for rumination, cognitive defusion and perfectionism cognitions in explaining cognitive test anxiety. However, it did not have an indirect effect for self-forgiveness over cognitive test anxiety as illustrated in Figure 4.5. Self-forgiveness had a negative relationship with psychological inflexibility, but it did not have a relationship with cognitive test anxiety.

4.3 Summary of Results

In this part of chapter, the results of the structural equation modeling were summarized. Accordingly, the analysis of measurement model verified the model and all assumptions were checked and satisfied. The overall results of the current study indicated that the proposed model was accepted by pointing to the predictors of cognitive test anxiety through the indirect effect of psychological inflexibility. When total effects were considered, exogenous variables excluding self-forgiveness predicted cognitive test anxiety. While self-forgiveness did not predict cognitive test anxiety directly, it had a direct significant relationship with psychological inflexibility. In other words, self-forgiveness was not found as the predictor of cognitive test anxiety in this model, as it did not have a significant indirect relationship with cognitive test anxiety through psychological inflexibility. The other exogenous variables (rumination, perfectionism cognitions and cognitive defusion) had direct and indirect significant relationships with endogenous variable. Within the model, psychological inflexibility had an indirect effect which affected the

relationship between rumination, perfectionism cognitions, cognitive defusion and cognitive test anxiety. That is, psychological inflexibility had an indirect effect on the relationship between rumination, perfectionism cognitions, cognitive defusion and cognitive test anxiety. However, it did not have an indirect effect on the relationship between self-forgiveness and cognitive test anxiety.

Overall, the results showed that rumination, perfectionism cognitions and cognitive defusion predicted cognitive test anxiety of Language Preparatory School students through the indirect effect of psychological inflexibility. That is, the high level of rumination resulted in more cognitive test anxiety when preparatory school students were psychologically more inflexible. Similarly, the results indicated that preparatory students who had more perfectionism cognitions were experiencing high cognitive test anxiety when they had a high level of psychological inflexibility. In the same vein, when preparatory students could put distance between their thoughts and self, they were having less cognitive test anxiety if they were psychologically flexible. Whereas, self-forgiveness level of preparatory school students had no relationship with their cognitive test anxiety as opposed to the hypothesis. The proposed model explained cognitive test anxiety of preparatory school students except self-forgiveness, which was associated with psychological flexibility but not cognitive test anxiety.

CHAPTER 5

DISCUSSION

The final chapter is divided into three sections and is comprised of the discussion and interpretation of the results in consideration of the main and sub-research questions of the present study. Taking the measurement and hypothesized model into account, the direct, indirect and total relationships are examined in light of the reviewed literature in the first section. In the second section, implications of the results for ongoing research and practice are provided and the last section addresses recommendations for further studies on the basis of the present study.

5.1 Discussion of the Findings

Within the scope of the study, the role of rumination, self-forgiveness, perfectionism cognitions, and cognitive defusion in predicting cognitive test anxiety through the indirect effect of psychological flexibility was investigated. In order to examine the relationships, a measurement model and a hypothesized model were tested. The measurement model was utilized to find to what extent latent variables were represented by observed variables in the current study. The fit indices of the measurement model proved that the latent and observed variables were all related. Similarly, the results indicated that the hypothesized model which aimed to test the predictive role of rumination, self-forgiveness, perfectionism cognitions, and cognitive defusion on cognitive test anxiety through the indirect effect of psychological flexibility was significant. The overall model accounted for 36% variance in cognitive test anxiety and 63% variance in psychological inflexibility. In

other words, students who had a high level of rumination and perfectionism cognitions and a low level of self-forgiveness and cognitive defusion scores tended to have high cognitive test anxiety when they had a high level of psychological inflexibility.

On the point of discussion regarding the relationship between each variable (rumination, self-forgiveness, perfectionism cognitions, cognitive defusion, and psychological inflexibility) and cognitive test anxiety, direct, indirect and total relationships were taken into consideration and broadened in light of the literature, when possible. Additionally, the direct effects of rumination, self-forgiveness, perfectionism cognitions, and defusion on psychological inflexibility are discussed in the following sections. The influence of psychological inflexibility as having an indirect effect is discussed within the perspective of related literature. The overall results indicate that psychological inflexibility has an indirect effect between rumination, perfectionism cognitions, defusion and cognitive test anxiety.

5.1.1 Discussion of the Direct Effects

The research sub-questions of the study included the various direct effects between endogenous (cognitive test anxiety) and exogenous variables (rumination, self-forgiveness, perfectionism cognitions and cognitive defusion) as well as the mediator variable (psychological flexibility). Consequently, the direct effects between variables are addressed in the first section.

The results of the direct effects showed that there was both a positive and significant relationship between rumination and cognitive test anxiety. That is, the results pointed out that the more students had rumination, the more they tended to have cognitive test anxiety. Moreover, there was a positive relationship between rumination and psychological inflexibility. As students had higher rumination, they became increasingly psychologically inflexible. That is, rumination was associated negatively with psychological flexibility in the present study. More importantly, the results of direct paths showed that rumination had the highest loading in predicting

psychological inflexibility and cognitive test anxiety among other variables.

The findings of the study were in line with the literature. As Brown et al. (2011) stated, rumination was positively related to test anxiety. In a similar vein, the results of the Grant and Beck's (2010) study indicated that test anxious students had the tendency toward rumination even after the exam. The relationship between rumination and cognitive test anxiety was also strengthened due to the cognitive process involved in both variables. More specifically, students who had a high level of rumination increased their cognitive test anxiety by over-thinking previous experiences.

In light of the related literature, it is not surprising to find an association between rumination and cognitive test anxiety. In their review, Flett et al. (2016) extensively prospected the topics of worry, rumination and perfectionism. The researchers mentioned that through the measurement of both variables, a strong correlation between worry and rumination was evident. This explanation strengthens the relationship between rumination and cognitive test anxiety when the worry aspect is embraced. Overall, these findings supported the findings of the study. Furthermore, in line with the findings of the study, Cassady (2004) reported that students with high cognitive test anxiety addressed perceived test threat as a result of rumination.

Rumination had a crucial role in students having a high level of test anxiety (Yu et al., 2015). Nolen-Hoeksema (2000) stated that rumination could be included under the personality characteristics of anxious people. Similar to the current study, Dora (2012) examined the predictors of test anxiety with 188 preparatory school students from a private university in Turkey. The findings of Dora's study were partially in accordance with the current study. The hierarchical regression results pointed out that among ruminative responses, brooding was significantly associated with test anxiety while reflection was not correlated with test anxiety in university students.

In the present study, perfectionism cognitions were the second possible predictor of cognitive test anxiety. In the first place, the results of the direct effects indicated that

perfectionism cognitions had a significant and positive relationship with cognitive test anxiety. This finding showed that the more people had perfectionism cognitions, the more they had cognitive test anxiety.

This was not a surprising result in light of the literature. As Eum and Rice (2011) emphasized, perfectionism cognitions were associated with cognitive test anxiety. A possible explanation for this can be the cognitive mechanism followed by both of the concepts (Stoeber et al., 2009). Moreover, a solid explanation can be given from the perspective of a self-regulation model in which high standards and negative self-evaluation result in the tendency toward test anxiety (Eum & Rice, 2011).

Both the findings of the current study and previous literature showed that perfectionism cognitions were strongly correlated with test anxiety. Perfectionism cognitions were found to have a positive relationship with test anxiety, especially from an maladaptive perfectionism perspective (Mills & Blankstein, 2000; Weiner & Carton, 2012). The researchers stated that the level of negative concerns about failing an exam increased with the perfectionistic ideas about one's self. It is worth mentioning that adaptive perfectionism might have a positive effect on test anxiety. However, maladaptive perfectionism reduced the academic success of students by increasing both the importance attached to the exams and the test anxiety level of the students. In a recent study, Abdollahi and Abu Talib (2015) proved the influence of adaptive and maladaptive perfectionism on test anxiety among Iranian high school students. The researchers found that test anxiety was negatively related to adaptive perfectionism, and conversely, there was a positive correlation between test anxiety and maladaptive perfectionism.

Furthermore, perfectionism cognitions were found to have positively correlated with psychological inflexibility. That is, the more likely students had perfectionistic cognitions, the more likely they had psychological inflexibility. However, among other predictors, perfectionism cognitions had the lowest loading in prediction of psychological inflexibility. In concordance with the literature and its stressed

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explanation of psychological flexibility, having cognitions of achieving a perfect, ideal goal prevents people from being flexible (Hayes & Smith, 2005). Rather than striving to achieve a value-based life, people with perfectionism cognitions ignore their inner values and focus on idealized goals falling into what is considered to be a value trap (Harris, 2013). Hill, Huelsman and Araujo (2010) pointed out the fact that perfectionism attempts have a positive relationship with psychological maladjustment. The study did not deal with psychological inflexibility in a direct way. However, the increase in perfectionistic thoughts having resulted in more psychological maladjustment can be given as a supportive explanation in the current study. All in all, perfectionism cognitions are against psychological flexibility in that they ignore core aspects including values, taking committed action and cognitive defusion. It is not surprising to find a direct positive relationship between perfectionism cognitions and psychological inflexibility. Having perfectionism cognitions prevents people from functioning on behalf of their values; those values being the cornerstone of psychological flexibility. Moreover, Strosahl and Robinson (2009) pointed to the fact that people with eating disorder can have perfectionism and thus, the researchers offered to use an ACT method to be used while working with this problem. They stressed cognitive defusion as a beneficial strategy.

As the third predictor of cognitive test anxiety, the direct effects between cognitive defusion and cognitive test anxiety were examined. The results showed that the direct relationship between cognitive defusion and cognitive test anxiety was statistically significant and negative. It means that a higher level of cognitive defusion is associated with low level cognitive test anxiety. More broadly, when students had the ability to put some distance between their thoughts and self and considered the anxious thoughts as only thoughts that were fleeting, they experienced less anxiety in testing situations. Although cognitive defusion has the lowest loading among predictors of cognitive test anxiety, the findings in this study are helpful contributions to the literature as it includes cognitive defusion in a model that tests the cognitive test anxiety.

As stated by Masuda et al. (2010), cognitive defusion can be used to decrease the level of believing in negative thoughts and negative emotions like anxiety (Pilecki & Mckay, 2012). This can lead to a significant awareness by creating distance between anxious thoughts in regard to a value-based life and in turn, help decrease the cognitive test anxiety.

Moreover, the ability of putting distance between thoughts and actions was associated with less psychological inflexibility. This finding was not surprising in the current study because psychological inflexibility included cognitive defusion on its own. That is, the higher ability to defuse cognitively from thoughts leads to less psychological inflexibility. In other words, the negative relationship indicated that to become more psychologically flexible, a person should do cognitive defusion, a process of separating thoughts and actions from each other and looking at one's thoughts from the outside. The ACT books and all other explanations about the theory (Hayes et al., 2001; Hayes et al., 1999; Hayes et al., 2010; Hayes & Smith, 2005; Hayes et al., 2012) indicated the relevance of cognitive defusion as a step toward psychological flexibility. Even in the literature review chapter, an extensive representation was provided to explain the relationship between psychological flexibility and cognitive defusion. However, it was discovered that very little research has been conducted on the correlation between cognitive defusion and psychological flexibility. Instead, the majority of the studies described cognitive defusion strategies in order to increase psychological flexibility (Hooper & McHugh, 2013; Masuda et al., 2010). Overall, the analysis of the direct relationship between cognitive defusion and psychological inflexibility took an expected direction in the current study.

Studying the variables of cognitive defusion and rumination in relation to psychological flexibility was not unique to this study. Although their research was about chronic pain, McCracken, Barker and Chilcot (2014) mentioned that among the core aspects of psychological flexibility, cognitive defusion was the most ignored aspect. Also, they stated that rumination and decentering shared an identical process

based on cognitive fusion and defusion respectively, thus the reason for including them from the perspective of psychological flexibility. The findings of the study were in accordance with the current study in a way that rumination was negatively related to psychological flexibility as well as cognitive defusion; however, it should be noted again that the sample was taken from patients with chronic pain. McCracken et al. (2014) concluded that because psychological flexibility is a new topic in literature, further comprehensive research about rumination and examination of all connected root aspects of psychological flexibility are necessary.

As the last predictor, the direct effects of the relationship between self-forgiveness and cognitive test anxiety were reported. In the first part, the direct effects indicated that there was not a significant relationship between self-forgiveness and cognitive test anxiety. In statistical terms, for a variable to be included in mediation analysis, there should be a direct relationship between the exogenous and endogenous variables (Hayes, 2009). However, the direct relationship between self-forgiveness and psychological inflexibility on the basis of literature led the researcher to investigate the predictive role of self-forgiveness over cognitive test anxiety. During model testing in the current study, all variables were tested on the basis of the indirect effect of psychological flexibility without measuring direct effects at first; that is, the hypothesized model already included self-forgiveness as an exogenous variable and psychological flexibility as a mediator. In fact, the literature supported the relationship between anxiety and self-forgiveness (Berry et al., 2001; Thompson et al., 2005; Webb et al., 2009). However, there was not an empirical finding regarding the predictive role of self-forgiveness on test anxiety. Therefore, in an attempt to find a possible relationship by considering the previous relationship between anxiety and self-forgiveness, the model was hypothesized and tested.

Through the literature, it was indicated that self-forgiveness had a close relationship with anxiety (Berry et al., 2001; Ross et al., 2007). Zettle, Barner, and Gird (2009) also underlined the importance of studying self-forgiveness and test anxiety. In this regard, the researcher argued self-forgiveness as a possible predictor of test anxiety.

However, there was a lack of research indicating the relationship between self-forgiveness and cognitive test anxiety. A reason for the insignificant relationship between self-forgiveness and cognitive test anxiety in the present study might be due to different features of these constructs. While test anxiety included two aspects: emotionality and worry, in the current study, only cognitive test anxiety was measured. On the other hand, self-forgiveness has an emotional and cognitive process, but it might be mostly an emotional process rather than a cognitive one, which is far beyond being able to be a predictor of cognitive test anxiety. Moreover, Luskin (2002) stated that if the person attributed too much importance to an event, the level of forgiveness decreased. On the basis of test anxiety, the testing situation might carry too much meaning for the student. Therefore, following Luskin's claims, it becomes threatening to forgive one's self for carrying anxious thoughts.

On the other hand, according to the findings of the present study, as self-forgiveness levels increased, people exhibited more psychological flexibility. As Zettle et al. (2009) mentioned, self-as-context involves self-forgiveness as a part of psychological flexibility. Also, after a level of self-forgiveness is realized, a person can then willingly decide on a committed action based on the individual's own values (Batten, 2011). Although ACT and well-grounded explanations about psychological flexibility have provided a possible influence of forgiveness on psychological flexibility, especially in regards to acceptance (Harris, 2006; Thompson et al., 2005; Zettle et al., 2009), to the author's knowledge, there has not been found any related studies so far. Considering the limited research about self-forgiveness in Turkey (Bugay, 2010), this research could be a guide for future self-forgiveness and psychological flexibility research. The attempt to predict cognitive test anxiety through self-forgiveness by considering the relationship between psychological flexibility and self-forgiveness was not proven in the current study. The direct relationship indicated that self-forgiveness should be included in psychological flexibility studies. However, self-forgiveness has not been found in any relationship with cognitive test anxiety. It is possible that the relationship between self-forgiveness and psychological flexibility comes through the

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relationship between self-forgiveness and psychological flexibility-related variables like rumination (Dixon et al., 2014), self-acceptance (Thompson et al., 2005), perfectionism (Griffin, 2014), and responsibility acceptance (Wenzel et al., 2012). The literature about self-forgiveness showed that anxiety was predicted by self-forgiveness in relation to supporting psychological well-being (Thompson et al., 2005). Even though the literature supported the finding that self-forgiveness has a relationship with anxiety, the current study showed that there was not a significant relationship between self-forgiveness and cognitive test anxiety but rather, psychological flexibility. This finding is remarkable on the point of being the first study about self-forgiveness and psychological flexibility from the context of college students. It should also be noted that Turkish literature lacks studies about the relationship between self-forgiveness and psychological flexibility. Therefore, it becomes difficult for the researcher to discuss the point in a broad sense with related literature.

The findings of the study were, to some extent, in line with the literature that self-forgiveness has a relationship with psychological flexibility but not with cognitive test anxiety. It could also be asserted that self-forgiveness is a difficult process. Enright (1996) stressed self-forgiveness as the most difficult one amongst forgiving others and receiving forgiveness. The author gave two explanations for this: self-forgiveness was not as concrete as the other two and the cognitive process required for self-forgiveness was more challenging. Considering this information, it could be inferred that students might have difficulty in processing self-forgiveness for their previous test-anxious cognitions. Moreover, Cornish and Wade's (2015) study of military people and people of substance abuse or crime, the researcher found that self-forgiveness must follow a serious problem. That is, people did not tend to be in a process of self-forgiveness if they did not consider the problem to be serious. With regard to this information, in the current study, students might not have accepted a test anxiety issue as a serious problem to self-forgiveness. In addition, the factors like critical parenting, pressure to be successful or socio-economic status might have

influenced their self-forgiveness level.

Finally, the direct effect between cognitive test anxiety and psychological inflexibility was significant and in a positive direction. That is, being psychologically inflexible led to a high level of cognitive test anxiety. However, the path was not strong. Therefore, the indirect relationships through psychological flexibility were not strong as well. The exogenous variables did not explain endogenous variables as well as they predicted psychological flexibility as the mediator variable.

5.1.2 Discussion of the Indirect Effects

To answer the main research question of the present study, indirect effects were also reported between variables. The findings supported the hypothesis that there was a positive relationship between rumination and cognitive test anxiety through the indirect effect of psychological inflexibility. That is, the relationship between rumination and cognitive test anxiety was still significant with the effect of psychological inflexibility. The significant positive total effects also supported the relationship between rumination and cognitive test anxiety. This finding indicated that rumination was associated with more cognitive test anxiety when students were psychologically more inflexible. The influence of rumination on cognitive test anxiety scores of participants was significant through the indirect effect of psychological inflexibility.

Rumination was still a predictor of cognitive test anxiety through the indirect effect of psychological flexibility. That is, as people ruminated more, they became less psychologically flexible and experienced high levels of cognitive test anxiety. The significant indirect effect of psychological inflexibility between rumination and cognitive test anxiety showed that rumination or overthinking about the past might block healthy thinking, this being a restrictive factor of psychological flexibility. As Brown et al. (2011) and Bond et al. (2011) indicated, rumination was a crucial factor in the psychological inflexibility of the participants.

The direct positive relationship between rumination and cognitive test anxiety as well as psychological flexibility paved the way for an indirect effect of psychological flexibility over cognitive test anxiety. When the effects were taken into consideration, rumination was related to both cognitive test anxiety and psychological flexibility, but mostly to psychological flexibility. Investigating the indirect effect of psychological inflexibility in predicting cognitive test anxiety was unique to the current study.

Although there was not any research investigating the indirect effect of psychological flexibility between rumination and cognitive test anxiety, there were some studies supporting the increase in rumination level resulting in psychological inflexibility. In line with the literature, rumination was against staying in the present moment which is a core aspect in psychological flexibility (Martin & Tesser, 1996). That is, excessive focusing on past events was positively correlated with being psychologically inflexible. In line with the scope of the current study, this might lead a student who had test anxiety to have been focused on his/her previous test anxious symptoms or the possible results of failure due to having anxious thoughts. Therefore, the positive relationship between rumination and psychological inflexibility was obvious. Over and above, testing rumination in relation to a specific event was essential to get an accurate result (Grant & Beck, 2010). In this sense, measuring rumination with relation to test anxiety led to enlightenment in the literature.

Furthermore, the indirect and total effects were calculated in the relationship between perfectionism cognitions and cognitive test anxiety. In a similar manner as with rumination, indirect and total effects indicated a significant and positive relationship between perfectionism cognitions and cognitive test anxiety. It means that students who had more perfectionism cognitions were having high cognitive test anxiety when they had a high level of psychological inflexibility. Although the path was not

strong, the direct relationship between perfectionism cognitions and cognitive test anxiety as well as psychological flexibility might have indicated a significant indirect effect of psychological flexibility between perfectionism cognitions and cognitive test anxiety.

The positive relationship between perfectionism cognitions and cognitive test anxiety through the indirect effect of psychological inflexibility indicated that the more people had perfectionistic cognitions, the more they felt psychologically inflexible and had higher cognitive test anxiety. The indirect effect of psychological inflexibility on the relationship between perfectionism cognitions and cognitive test anxiety was also not surprising when the significant positive relationship between psychological inflexibility and perfectionism cognitions were considered. The explanation can be given when considering the value-oriented action aspect of psychological flexibility. To maintain psychological flexibility, it is recommended to define one's values in life and take committed actions towards reaching those values. However, people who had perfectionism cognitions might be focusing on idealized thoughts. Consequently, they might be striving for goals that are at a distance from their defined values. With this perspective, students having high test anxiety can be supported with value-based living by increasing psychological flexibility. It is worth mentioning that the attempts to reduce suffering actually increased feelings of suffering when the focus was not on values but on reducing actions (Gloster et al., 2017).

As mentioned in the literature review, experiential avoidance is the opposite of psychological flexibility. While experiential avoidance focuses on trying to get rid of negative emotions and thoughts, psychological flexibility is based on accepting negative emotions and thoughts to understand and change their function. Concordantly, the role of experiential avoidance could also provide an insight into psychological flexibility. In their study with undergraduate students, Santanello and Gardner (2007) noted that as maladaptive perfectionism increased, people tried to remove negative thoughts which, in turn, resulted in higher experiential avoidance.

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Similarly, increase in experiential avoidance led to a high level of worry. In the study, experiential avoidance played the role of partial mediator between maladaptive perfectionism and worry. In other words, it may be inferred from the results that when people had maladaptive perfectionism and as they were trying to eliminate a problem, the level of their worry increased. From this point of view, it could be argued that increasing psychological flexibility instead of experiential avoidance would contribute to having less worry, this worry being the main component of cognitive test anxiety. The findings of the current study can be considered as supporting this point of view.

As the third variable, the indirect and total effects of cognitive defusion on cognitive test anxiety again were negatively significant. In other words, the findings indicated that the ability to defuse thoughts from actions led to having less psychological inflexibility and having less cognitive test anxiety. It should be crucial to point out that there was a significant, negative direct relationship between cognitive defusion and psychological inflexibility which indicated that participants who could separate their actions from thoughts showed less signs of cognitive test anxiety as a result of being psychologically more flexible.

Based on the critical points about defusion in literature, it can be argued that understanding the fact that thoughts and mind are totally different can help individuals take encouragement in dealing with the problem, since anxious thoughts about exams come and go before, during or after the exam. However, this does not mean that a person has an anxious personality. It only points that the person has anxiety-provoking thoughts at those times. It is a useful endeavor to teach test anxious college students to defuse their thoughts from actions. The reality of trying to prevent test anxiety and keeping anxiety on the surface can be the first way to start. The individual can be taught to experience anxiety without taking actions to reduce or change it. The small but significant influence of cognitive defusion can be explained by taking Luciano et al.'s (2014) suggestions into consideration. The researchers offered to use cognitive defusion techniques together with other

interventions of psychological flexibility concepts. This explanation opens the way to broaden the literature about test anxiety from the perspective of ACT, which covers the significance of the current study.

Considering the effect size of cognitive defusion in psychological flexibility studies (Levin et al., 2012), defusion should be used to enhance the level of psychological flexibility leading to dealing with problems in a more acceptable manner than fighting against them. As Gloster et al. (2017) clearly stated in their study, continuing to fight symptoms with the aim of reducing them actually increased suffering. Instead, laying emphasis on valued-behaviors decreased suffering for people with panic disorder. In concordance with the previous literature (Brown et al., 2011), using cognitive defusion interventions can be encouraged in dealing with test anxiety problem. The significant results of the current study supported the literature that using cognitive defusion strategies can be used to engage in the problem of test anxiety, since there was a negative relationship between cognitive defusion and cognitive test anxiety when people had psychological flexibility.

However, there is limited research about cognitive defusion and cognitive test anxiety. According to what Roberts and Sedley (2016) proposed in their study, cognitive defusion can be considered among the most critical strategies in dealing with anxiety problem. However, cognitive defusion was not studied as a separate category of psychological flexibility to a large extent.

Results indicated no indirect or total effects of self-forgiveness on cognitive test anxiety. This finding was not surprising after the non-significance of the direct relationship between cognitive test anxiety and self-forgiveness. It was impossible to find any indirect relationship in the absence of a direct relationship. However, in line with the literature, self-forgiveness had a direct relationship with psychological flexibility in the present study. Thompson et al. (2005) found a positive relationship between self-forgiveness and psychological flexibility. The more people forgave themselves, the more psychological flexibility they had in life. It should be noted that

while self-forgiveness had an effect over psychological inflexibility, it did not provide significant effect over cognitive test anxiety. Therefore, for the overall hypothesized model, it did not produce significant results in terms of fit indices.

The amount of research about self-forgiveness among college students in Turkey is limited. Also, as Bugay (2010) underlined, self-forgiveness can be recognized much more in individualistic cultures. In contrast, Turkish culture is a collectivist culture. This interpretation can be an explanation for the findings of the current study. The reason for the insignificance of self-forgiveness might be due to not accepting individual responsibility. That is, college students may attribute their anxiety to outside factors. In a similar way, Stankov (2010) stated the negative influence of unforgiving characteristics of Asian culture in high level test anxiety. Although this argument should be approached with caution, as Mok (2010) suggested, there might be the possibility that cultural factors affect self-forgiveness interpretations. The cause and effect studies about self-forgiveness and anxiety as well as test anxiety should be conducted in order to discover the cultural aspects if possible.

Even though rumination, perfectionism cognitions and cognitive defusion predicted cognitive test anxiety through the indirect effect of psychological inflexibility, some of the effects were small. Therefore, the results should be interpreted cautiously. The results showed that although cognitive test anxiety was predicted by rumination, perfectionism cognitions and cognitive defusion, there were other variables that could account for the unexplained variance in the current study.

5.1.3 Discussion of the Relationship between Variables

Investigating the influence of different variables associated with psychological flexibility might help in examining the issue of test anxiety in a broad sense. It can be inferred from the findings that increasing psychological flexibility can be a favorable way in dealing with test anxiety problem. As students have a high rumination level, high perfectionism cognitions, and a low level of cognitive defusion, their psychological inflexibility increases and they have high test anxiety.

When psychological flexibility is taken into consideration, for students with test anxiety, ruminating about the past exam performance due to high test anxiety will lead to less psychological flexibility since it will keep the student away from being in the present moment (Hayes et al., 2012). Moreover, having perfectionism cognitions like "I have to get the highest grades, be number one in the class and make my family proud" will reduce psychological flexibility since perfectionism cognitions might prevent students from observing self because they have detracted awareness from themselves. Students having high perfectionism cognitions might experience difficulty in pure awareness of self-as-context.

Additionally, students who have cognitive defusion can detract their anxious thoughts from themselves by accepting the anxious thoughts but categorizing these thoughts as only thoughts and behaving with this perspective (Hayes et al., 2012). This means that test anxious students are aware of their anxious thoughts but can still continue answering questions by cognitively defusing. Similar to the items in the defusion scale used in the current study, students are aware that they are anxious, but to what extent they can defuse their anxious thoughts to achieve their goals is crucial. As a result, they can take committed action based on their values, such as being a well-qualified graduate ready for work life. The critical aspect here is that the value is not found in meeting community expectations but rather separated from fulfilling social desirability and instead, creating a meaningful life (Hayes et al., 2003). Also, the ability to have psychological flexibility consists of acceptance in regard to achievement values. In this sense, test anxious students who ruminate less, have less perfectionism cognitions and have a high level of cognitive defusion are likely to accelerate psychological flexibility which leads to low test anxiety.

Likewise, using ACT in test anxiety is encouraged in the findings of some studies. Brown et al. (2011) found that there was a reduction in the level of test anxiety in groups where ACT techniques were applied. In a current book, Hooper and Larsson (2015) emphasized the findings of Brown et al. (2011) under the part of anxiety disorders by directing attention to the point that it is not always required to eliminate

a problem in order to survive it.

In light of the literature, the findings can be supported with the view that teaching students to discover their values and define their future goals based on those values is essential. Students experiencing test anxiety should be educated with the aim of achieving psychological flexibility, by welcoming all emotions and thoughts like test anxiety in light of one's values including those for a better future, instead of prospecting solutions for the problem. For the sake of obtaining values, the person should not only be ready to face thoughts without making any attempt to change them, but rather take a step further by changing the relation of its function. Instead of striving to eliminate the test anxiety problem, taking committed action by accepting the feelings of anxiety is crucial. Seeing test anxiety as a normal return for the sake of achieving a qualified future and high grades is encouraged.

Psychological flexibility played the role of mediator in line with the literature (Ruiz, 2014). It is appropriate to mention that Hulbert-Williams et al. (2015) suggested further mediation analysis of ACT and its interventions. This could be because of the previous literature about ACT and related variables in dealing with many problem areas from cancer to depression (Öst, 2014). Even though the relationships have small effects on psychological flexibility, the current study proved that ACT working with cognitive test anxiety is an innovation and contribution to literature.

In line with Brown et al.'s (2011) suggestion in their research, test anxiety can be tested from an acceptance and commitment therapy perspective in different cultures and the interventions of the approach can be used for different problems. However, this does not mean that all of the interventions are appropriate in all cultures in the same way. In his study, Doğan (1999) stated that in Turkey, counseling services at schools mostly focused on crisis-based and remedy interventions, so a solution-based theory could be appropriately applied in school settings. However, ACT, as the third wave of cognitive-behavior therapy, might require comprehensive studies in dealing with problems. Consequently, ACT might be a better alternative for college students

compared to secondary or primary school students because ACT interventions were related to finding values, acceptance or doing cognitive defusion, which could require a difficult process for young students. Also, ACT methods were administered to adults and provided effective results for many problems like anxiety, depression, eating disorders, worry, etc. (Hayes & Lillis, 2012). Furthermore, Meunier et al. (2014) mentioned that in order to talk about psychological inflexibility, a moderate level of anxiety was demanded as in the case of current study. Therefore, studying psychological flexibility in cognitive test anxiety contributed to the literature.

The direct relationship between rumination, perfectionism cognitions, cognitive defusion and cognitive test anxiety remained significant showing an indirect effect after the inclusion of psychological inflexibility. The course of this indirect relationship could be extended via distinctive relationships between variables. Furthermore, there could be the possibility of additional variables which were not examined in the current study but would affect this relationship through further indirect effects.

5.2 Implications for Research and Practice

Considering the attached importance to education, it seems quite difficult to create an educational system in which students do not feel any stress or anxiety about tests, especially when success is regarded as crucial at each level. Instead, it is imperative to diversify the interventions in light of the findings which imply that changing the relationship with the problem is more helpful than trying to eliminate the problem. From ACT perspective, trying to solve the problem does not remove the problem (Hayes et al., 2012). This implication should be considered by practitioners working in various settings like university, school environments, health clinics and counseling centers which provide psychological help because the significant findings in the current study indicated that psychological flexibility has a role in the explanation of test anxiety problems. In light of the study, problems can be reduced or the psychological and physiological effects can be decreased in an education setting where attempts are taken in order not to eliminate anxiety but to engage in useful

ways to deal with anxiety without changing the events. It is expected that this finding might lead to the utilization of ACT interventions for problems like mindfulness.

ACT, as a new theoretical perspective, is a new way for people who have become tired of fighting the problem by trying to solve the problem. Consequently, education settings can benefit from embracing ACT point of view. Exercises like clouds and the sky, labeling thoughts as thoughts, rethinking, or mindful exercises can help the individuals handle the issues in a mindful way. In addition, teaching cognitive defusion skills might increase the ability to put distance between thoughts and self, which might result in more psychological flexibility. The energy taken from working against the problem will be better directed towards working with the problem. Therefore, students having test anxiety can learn how to survive even though they may still have anxious thoughts. This implication can be enhanced throughout the whole university setting where students can use their energy to reach their values.

In this regard, activities or services can be arranged in which students have the chance to discover their values and take action towards their value-based living. When students define their values like "being a well-qualified graduate" they can be encouraged to engage in interventions to work with test anxiety. Increasing their awareness towards the goals based on their values instead of putting them in a cycle of achieving good grades can help them extensively. It might increase their level of encouragement and finding meaning in their actions. ACT perspective can be a valuable way of dealing with test anxiety especially in university settings where students have the tendency to think about their future.

University counseling centers can take the findings of the current study into consideration in arranging prevention activities for students. The findings of Valure's (2015) study, whose aim was to investigate attitudes of college students' stigmatization regarding test anxiety, indicated that among students who experienced test anxiety, 17% of them asked for treatment while the majority of participants (83%) did not apply for any treatment. Considering high number of test anxious

students who have not applied for treatment, the results of the current study can provide invaluable insight. The results imply that rumination, cognitive defusion and perfectionism cognitions should be considered in dealing with test anxious students, especially for prevention activities. Also, the level of psychological flexibility of the student contributes positively to decreasing the anxiety about exams. Therefore, university counseling centers should provide services that cover all the variables including the attempt to strengthen psychological flexibility.

The findings of the study have the potential to cover a lot of ground for discovering the related variables of college students' test anxiety. The findings of the current study may provide important insights for preparatory school administrators. The administrators can take the predictors of cognitive test anxiety into consideration while receiving support from university counseling services for prevention activities. The administration can give priority to the inclusion of predictive variables of cognitive test anxiety in college orientation or adjustment programs conducted during the first term of every academic year. This might not only enrich the implications in preparatory school students but might also lead to further achievement in the following years of college. That is, related variables of cognitive test anxiety are noticed early in the college years. Thus, preparatory school can function not only as a school for teaching language but also as a way to care for students' psychology. Similarly, realizing cognitive test anxiety predictors can help instructors in preparatory school to be aware of these variables in test anxious students. They can take advantage of the findings of the present study in referring their students to psychological counseling centers of the university.

Eifert and Forsyth (2005) proposed organizing psycho-education activities on ACT as a proper and helpful way of dealing with all types of anxiety problems. In this sense, counseling centers can arrange psycho-education group counseling activities for test anxious students considering the fact that acceptance and teaching value-based living is a beneficial alternative to anxiety problems. The findings of a recent randomized controlled study supported that increasing the valued action decreased

the level of suffering (Gloster et al., 2017). In light of this information, psycho-education groups consisting of college students would be a practical formula to prevent the attempt to control test anxiety which is the main problem and not a solution. Similarly, Glaser, Blackledge, Shepherd, and Deane (2009) explained in detail how practitioners working on test anxiety can follow the comprehensive steps of ACT to develop a brief group therapy process for test anxiety problems.

ACT has been used in different problem settings and with different samples. As Strosahl and Robinson (2009) recommended, ACT can be maintained by various practitioners including psychologists, social workers, counselors, health care providers as well as educators and parents. Taking the diverse usability of ACT into consideration, the findings of the current study is not only a guide for the literature, but it is also a guide for the caring professions explaining the theory and its subsequent interventions. Strosahl and Robinson (2009) also emphasized using ACT methods in large classes especially for students who are preparing for academic exams. Therefore, the findings of the current study might shed a light on dealing with test anxiety problems in education settings.

Furthermore, the situations in which Hayes and Smith offer to apply cognitive defusion techniques might seem quite appropriate and valid to be used in test anxiety situations. Hayes and Smith (2005, p. 86) listed these situations as below:

- *Your thoughts feel old, familiar, and lifeless*
- *You submerge into your thoughts and the external world disappears for a while*
- *Your mind feels comparative and evaluative*
- *You are mentally somewhere else or in some other time*
- *Your mind has a heavy "right and wrong" feel*
- *Your mind is busy or confusing*

Considering the test anxiety environment of a student, using cognitive defusion would be helpful in dealing with test anxiety. All in all, what psychological flexibility in ACT describes broadly is quite appropriate for cognitive test anxiety

from the perspective of several different variables. Thus, practitioners can give priority to applying cognitive defusion interventions with test-anxious students.

Along with the theoretical contribution, the current study provided empirical findings for the indirect effect of psychological flexibility over test anxiety. Above all, rumination and cognitive defusion are key factors in predicting cognitive test anxiety through the indirect effect of psychological flexibility. This prediction might provide an insight into the interventions for test anxiety as well as other problems via the reduction of rumination and promotion of cognitive defusion as proposed by Forman et al. (2012).

Regarding the question of whether individual or group activities are efficient in dealing with test anxiety, Suinn (1968) compared a treatment group in which students took group sessions followed by individual sessions about decreasing test anxiety by desensitization with a control group in which students were applied scales within a time interval. The results were remarkable on the point that students in the treatment group compared to the untreated group reduced their test anxiety level leading the author to suggest that using individual and group sessions were valuable in dealing with test anxiety. Considering this point of view, it could be suggested that ACT sessions might also be applied both individually and as a group when dealing with test anxiety issue because the results of the current study indicated a relationship between psychological flexibility and cognitive test anxiety. It becomes quite challenging to argue individual sessions or group activities are superior one over the other. Nonetheless, dealing with cognitive test anxiety within ACT perspective should be studied in both individual and group sessions.

Besides practitioners, some further implications can be given for policy makers. As literature indicates, cognitive test anxiety can be a common problem from primary school to college life. Therefore, policy makers can encourage the inclusion of cognitive test anxiety into comprehensive school counseling programs in K-12 schools. Furthermore, in university settings, university administration can support

university counseling centers' organization of prevention activities for cognitive test anxiety.

To conclude, it is expected that the findings of the current study can encourage practitioners to include perfectionism cognitions, rumination and cognitive defusion in counseling interventions. In addition, increasing psychological flexibility can facilitate dealing with test anxiety problem.

5.3 Recommendations for Further Studies

Considering the design and findings of the present study, it is possible to make further recommendations, as well as taking the limitations of the study into account. First of all, the current study was a correlational study in which correlations between variables were tested and the predictive role of variables were reported via self-report measures. However, there was not any cause-effect relationship to enlighten the literature in terms of the reasons for associations between test anxiety and different psychological constructs due to the lack of controlling confounding variables. Therefore, future research can be reinforced by comparing groups in terms of test anxiety in experimental research. Moreover, the concepts of psychological flexibility are appropriate to be studied in relation to the behavioral process. To advance defusion studies through a value-based living by increasing psychological flexibility, Gil-Luciano et al. (2016) required the use of behavioral measurements rather than self-reports by stressing the necessity of changing the relationship with the relevant behavior to the aim of defusion. In this regard, future studies can be extended taking these correlational relationships between variables into consideration to enlarge further experimental studies.

As suggested by Brown et al. (2011), the relationship between ACT and test anxiety should be investigated in different cultures and contexts. Considering the potential role of cognitive and emotional flexibility in the healing process in different cultures, Hinton and Kirmayer (2016) regard the understanding of the concept of flexibility by examining cultural tendencies. Therefore, after being empirically tested, increasing

the number of culture-based interventions for psychological flexibility might contribute to healing processes as well.

The literature in Turkey is scarce regarding the research about acceptance and commitment theory and its core concept, psychological flexibility. The findings of the present study indicated that psychological flexibility was related to rumination, self-forgiveness, perfectionism cognitions and cognitive defusion. Thus, on the basis of the results, it can be suggested that psychological flexibility should be studied with other related variables like speaking anxiety, motivation, etc. since there was an unexplained variance influencing psychological flexibility and cognitive test anxiety.

Additionally, the sample of the study should be considered to provide recommendations for further studies. The current study was carried out with English language preparatory students at a state university. Therefore, the findings of the study cannot be generalized to the whole population of college students. On the basis of the limited amount of research conducted with test anxiety of college students, further research needs to be conducted with college students in other universities in Turkey in order to generalize the results about the predictors of test anxiety in more diverse populations including: different class levels, educational programs and gender. Even though the sample included a representative proportion of all language levels in preparatory school by a stratified sampling of all classes representing the preparatory school, the sample might not give accurate results in terms of students having not taken college courses. Yet, the results would be generalized to the whole college population. Considering the high level of test anxiety in high school settings, this model of study can also be conducted with high school students.

As a promising suggestion to extend the sample of the study, further research could include the comparison of cognitive test anxiety of preparatory students in terms of their different language levels. When each language level was considered as a different group, the sample of the current study was not enough to make a sufficient comparison between students at different language levels because structural equation

modeling requires a higher number of participants to test the hypothesized model. Consequently, further studies can be conducted between students of different language levels to examine the models. For instance, the variables of the model can be tested in terms of comparing beginner and advanced students. Additionally, it can be suggested that the model can be tested with the sample of repeat students who are preparing for proficiency exam again in their second year in preparatory school.

ACT has been studied with a diverse group of participants ranging from younger adolescents to elderly people (Hayes et al., 2012, p. 125, 134). The researchers suggested that using ACT in education settings and prevention studies would be enlarged in the future. In fact, this study is a continuum within this context; as offered by McCracken et al. (2014), in which a psychological variable was examined within the perspective of core aspects of psychological flexibility, which has been quite new in the literature. However, prevention studies still need to be developed in light of these findings. Considering the findings of Sattler and Wiegel's (2013) study in which using medicine among students with test-anxiety is stated to be increasing, the prevalence of using medicine for cognitive enhancement among test-anxious student may be handled with ACT based prevention studies including cognitive interventions in future research with regard to the findings in the current study.

As psychological flexibility is a new terminology for a Turkish context, investigating its core concepts related to other problems can make valuable contributions to the literature. In this regard, a new measurement, the Drexel Defusion Scale, was adapted to Turkish in the current study and this adaptation can play a stimulating role in advancing ACT literature in Turkey. In addition, other adapted measurements: the Perfectionism Cognitions Inventory and the State Self-Forgiveness Scale, should be utilized in different contexts and with different samples such as high school students, late adolescents or elderly people. In further research, investigating the relationship between self-forgiveness and other variables can be increased so that self-forgiveness literature can be enhanced in a Turkish context.

Furthermore, the study is among the first correlational studies that has investigated the variables of rumination, self-forgiveness, perfectionism cognitions and cognitive defusion and their role in predicting cognitive test anxiety. Therefore, further cross-sectional and longitudinal studies can be conducted to investigate the different variables of cognitive test anxiety.

Finally, on the basis of the study, direct and indirect effects were reported and discussed. Future research can be reinforced by taking the indirect effects into consideration while including the other possibly related psychological constructs in explaining cognitive test anxiety which has been an almost new concept in test anxiety literature.

REFERENCES

Abdollahi, A., & Abu Talib, M. (2015). Emotional intelligence moderates perfectionism and test anxiety among Iranian students. *School Psychology International*, *36*(5), 498–512. doi:10.1177/0143034315603445

Akca, F. (2011). The relationship between test anxiety and learned helplessness. *Social Behavior and Personality*, *39*(1), 101–111. doi:10.2224/sbp.2011.39.1.101

Akinsola, E. F., & Nwajei, A. D. (2013). Test anxiety, depression and academic performance: Assessment and management using relaxation and cognitive restructuring techniques. *Psychology*, *4*(6A1), 18–24. doi:10.4236/psych.2013.46A1003

American Test Anxieties Association. (n.d.). Is it serious? Retrieved June 26, 2017, from http://amtaa.org/is-it-serious/

Arana, F. G., & Furlan, L. (2016). Groups of perfectionists, test anxiety, and pre-exam coping in Argentine students. *Personality and Individual Differences*, *90*, 169–173. doi:10.1016/j.paid.2015.11.001

Aydin, G., & Yerin, O. (1994). The effect of a story-based cognitive behavior modification procedure on reducing children's test anxiety before and after cancellation of an important examination. *International Journal for the Advancement of Counselling*, *17*(2), 149–161. doi:10.1007/BF01407971

Aydin, K. B. (2009). Automatic thoughts as predictors of Turkish university students' state anxiety. *Social Behavior and Personality*, *37*(8), 1065–1072. doi:10.2224/sbp.2009.37.8.1065

Ayearst, L. E., Flett, G. L., & Hewitt, P. L. (2012). Where is multidimensional perfectionism in DSM-5? A question posed to the DSM-5 personality and personality disorders work group. *Personality Disorders: Theory, Research, and Treatment*, *3*(4), 458–469. doi:10.1037/a0026354

Bach, P., Moran, D., & Hayes, S. C. (2008). *ACT in practice: Case conceptualization in acceptance & commitment therapy*. Oakland, CA: New Harbinger.

Bandalos, D. L. (2002). The effects of item parceling on goodness-of-fit and parameter estimate bias in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *9*(1), 78–102. doi:10.1207/S15328007SEM0901_5

Başol, G. I., & Zabun, E. (2014). The predictors of success in Turkish high school placement exams: Exam prep courses, perfectionism, parental attitudes and test anxiety. *Educational Sciences: Theory and Practice*, *14*(1), 78–87. doi:10.12738/estp.2014.1.1980

Batten, S. V. (2011). *Essentials of acceptance and commitment therapy*. London: SAGE Publications.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.

Bedell, J. R., & Marlowe, H. A. (1995). An evaluation of test anxiety scales: Convergant, divergent, and predictive validity. In C. D. Spielberger & P. R. Vagg (Eds.), *Test anxiety: Theory, assessment, and treatment* (pp. 35–45). Washington, DC: Taylor & Francis.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238–246.

Berger, J. I. (2012). *Cognitive vulnerabilites associated with test anxiety. (Unpublished Doctoral Thesis)*. Adler School of Professional Psychology. UMI Number: 3578542

Berry, J. W., Worthington, E. L., Parrott, L., O'Connor, L. E., & Wade, N. G. (2001). Dispositional forgivingness: Development and construct validity of the Transgression Narrative Test of Forgivingness (TNTF). *Personality and Social Psychology Bulletin*, *27*(10), 1277–1290. doi:10.1177/01461672012710004

Bishara, A. J., & Hittner, J. B. (2015). Reducing bias and error in the correlation coefficient due to nonnormality. *Educational and Psychological Measurement*, *75*(5), 785–804.

Block, J. A. (2002). *Acceptance or change of private experiences: A comparative analysis in college students with public speaking anxiety. (Unpublished Doctoral Thesis)*. University at Albany, State University of New York.

Block, J. A., & Wulfert, E. (2000). Acceptance and change: Treating socially anxious college students with ACT or CBGT. *The Behavior Analyst Today*, *1*(2), 1–55.

Bluett, E. J., Homan, K. J., Morrison, K. L., Levin, M. E., & Twohig, M. P. (2014). Acceptance and commitment therapy for anxiety and OCD spectrum disorders: An empirical review. *Journal of Anxiety Disorders*, *28*(6), 612–624. doi:10.1016/j.janxdis.2014.06.008

Bodas, J., & Ollendick, T. H. (2005). Test anxiety: A cross-cultural perspective. *Clinical Child and Family Psychology Review*, *8*(1), 65–88. doi:10.1007/s10567-005-2342-x

Bögels, S. M., Alden, L., Beidel, D. C., Clark, L. A., Pine, D. S., Stein, M. B., & Voncken, M. (2010). Social anxiety disorder: Questions and answers for the DSM-V. *Depression and Anxiety*, *27*, 168–189. doi:10.1002/da.20670

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., … Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionniare-II: A revised measure of psychological flexibility and experiential avoidance. *Behavior Therapy*, *42*, 676–688.

Boyacioglu, N., & Kucuk, L. (2011). Irrational beliefs and test anxiety in Turkish school adolescents. *The Journal of School Nursing*, *27*(6), 447–54. doi:10.1177/1059840511417631

Bozkurt, S., Ekitli, G. B., Thomas, C. L., & Cassady, J. C. (2017). Validation of the Turkish version of the Cognitive Test Anxiety Scale–Revised. *SAGE Open*, *7*(1), 1–9. doi:10.1177/2158244016669549

Bridges, K. R., & Harnish, R. J. (2010). Role of irrational beliefs in depression and anxiety: A review. *Health*, *2*(8), 862–877. doi:10.4236/health.2010.28130

Brooks, B. D., Alshafei, D., & Taylor, L. A. (2015). Development of the Test and Examination Anxiety Measure (TEAM). *Psi Chi Journal of Psychological*

Research, *20*(1), 2–10. doi:10.24839/2164-8204.JN20.1.2

Brown, L. A., Forman, E. M., Herbert, J. D., Hoffman, K. L., Yuen, E. K., & Goetter, E. M. (2011). A randomized controlled trial of acceptance-based behavior therapy and cognitive therapy for test anxiety: A pilot study. *Behavior Modification*, *35*(1), 31–53. doi:10.1177/0145445510390930

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. B. & J. S. Long (Ed.), *Testing structural equation models* (pp. 136–162). Beverly Hills, CA: Sage.

Bugay, A. (2010). *Investigation of social-cognitive, emotional and behavioral variables as predictors of self-forgiveness. (Unpublished Doctoral Thesis)*. Middle East Technical University, Ankara.

Carver, C. S., Peterson, L. M., Follansbee, D. J., & Scheier, M. F. (1983). Effects of self-directed attention on performance and persistence among persons high and low in test anxiety. *Cognitive Therapy and Research*, *7*(4), 333–353. doi:10.1007/BF01177556

Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation*. New York, NY: Springer-Verlag. doi:10.1007/978-1-4612-5887-2

Cassady, J. C. (2001). The stability of undergraduate students' cognitive test anxiety levels. *Practical Assessment, Research & Evaluation*, *7*(20), 1–5.

Cassady, J. C. (2004a). The impact of cognitive test anxiety on text comprehension and recall in the absence of external evaluative pressure. *Applied Cognitive Psychology*, *18*(3), 311–325. doi:10.1002/acp.968

Cassady, J. C. (2004b). The influence of cognitive test anxiety across the learning–testing cycle. *Learning and Instruction*, *14*(6), 569–592. doi:10.1016/j.learninstruc.2004.09.002

Cassady, J. C. (2010). *Anxiety in schools: The causes, consequences and solutions for academic anxieties*. New York: Peter Lang.

Cassady, J. C., & Finch, W. H. (2015). Using factor mixture modeling to identify dimensions of cognitive test anxiety. *Learning and Individual Differences*, *41*, 14–20. doi:10.1016/j.lindif.2015.06.002

Cassady, J. C., & Johnson, R. E. (2002). Cognitive test anxiety and academic performance. *Contemporary Educational Psychology*, *27*(2), 270–295. doi:10.1006/ceps.2001.1094

Cassady, J. C., Mohammed, A., & Mathieu, L. (2004). Cross-cultural differences in test perceptions: Women in Kuwait and the United States. *Journal of Cross-Cultural Psychology*, *35*(6), 713–718. doi:10.1177/0022022104270113

Chapell, M. S., Blanding, Z. B., Silverstein, M. E., Takahashi, M., Newman, B., Gubi, A., & McCann, N. (2005). Test anxiety and academic performance in undergraduate and graduate students. *Journal of Educational Psychology*, *97*(2), 268–274. doi:10.1037/0022-0663.97.2.268

Cizek, G. J., & Burg, S. S. (2006). *Addressing test anxiety in a high-stakes environment*. Thousand Oaks, CA: Corwin Press.

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. Heimberg, M. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment* (pp. 69–93). New York: Guilford Press.

Cornish, M. A., & Wade, N. G. (2015). A therapeutic model of self-forgiveness with intervention strategies for counselors. *Journal of Counseling and Development*, *93*(1), 96–104. doi:10.1002/j.1556-6676.2015.00185.x

Covington, M. V. (1984). The self-worth theory of achievement motivation: Findings and implications. *The Elementary School Journal*, *85*(1), 4–20. doi:10.1086/461388

Cox, B. J., Enns, M. W., & Taylor, S. (2001). The effect of rumination as a mediator of elevated anxiety sensitivity in major depression. *Cognitive Therapy and Research*, *25*(5), 525–534. doi:10.1023/A:1005580518671

Daltry, R. M. (2015). A case study: An ACT stress management group in a university counseling center. *Journal of College Student Psychotherapy*, *29*(1), 36–43. doi:10.1080/87568225.2015.976076

Dan, O., Bar Ilan, O., & Kurman, J. (2014). Attachment, self-esteem and test anxiety in adolescence and early adulthood. *Educational Psychology*, *34*(6), 659–673. doi:10.1080/01443410.2013.814191

Davis, H. A., DiStefano, C., & Schutz, P. A. (2008). Identifying patterns of appraising tests in first-year college students: Implications for anxiety and emotion regulation during test taking. *Journal of Educational Psychology*, *100*(4), 942–960. doi:10.1037/a0013096

Deacon, B. J., Fawzy, T. I., Lickel, J. J., & Wolitzky-Taylor, K. B. (2011). Cognitive defusion versus cognitive restructuring in the treatment of negative self-referential thoughts: An investigation of process and outcome. *Journal of Cognitive Psychotherapy*, *25*(3), 218–232. doi:10.1891/0889-8391.25.3.218

Denizli, S. (2004). *The role of hope and study skills in predicting test anxiety levels of university students. (Unpublished Master's Thesis)*. Middle East Technical University, Ankara.

Diamantopoulos, A., & Siguaw, J. A. (2000). *Introducing LISREL: A guide for the uninitiated*. Sage.

Dixon, L. J., Earl, K. A., Lutz-zois, C. J., Goodnight, J. A., & Peatee, J. J. (2014). Explaining the link between perfectionism and self- forgiveness: The mediating roles of unconditional self-acceptance and rumination. *Individual Differences Research*, *12*(3), 101–111. doi:1541-745X

Dodeen, H. (2009). Test-related characteristics of UAEU students: Test-anxiety, test-taking skills, guessing, attitudes towards tests, and cheating. *Journal of Faculty of Education*, *1*(26), 31–66.

Doğan, P. S. (1999). Okul psikolojik danışmanları için yeni ve pratik bir yaklaşım: çözüm-odaklı kısa süreli psikolojik danışma. *Eğitim ve Bilim Dergisi*, *25*(116), 59–66.

Dora, G. A. (2012). *The contribution of self-control, emotion regulation, rumination, and gender to test anxiety of university students. (Unpublished Master's Thesis)*. Middle East Technical University, Ankara.

DordiNejad, F. G., Hakimi, H., Ashouri, M., Dehghani, M., Zeinali, Z., Daghighi, M. S., & Bahrami, N. (2011). On the relationship between test anxiety and academic performance. *Procedia - Social and Behavioral Sciences*, *15*, 3774–3778. doi:10.1016/j.sbspro.2011.04.372

Dusek, J. B. (1980). The development of test anxiety in children. In I. G. Sarason (Ed.), *Test anxiety: Theory, research and applications*. Hillsdale, NJ: Erlbaum.

Eifert, G. H., & Forsyth, J. P. (2005). *Acceptance & commitment therapy for anxiety disorders: A practitioner's treatment guide to using mindfulness, acceptance, and values-based behavior change strategies*. Oakland, CA: New Harbinger.

Ellis, A. (2002). The role of irrational beliefs in perfectionism. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 217–229). Washington, DC: American Psychological Association.

Enright, R. D. (1996). Counseling within the forgiveness triad: On forgiving, receiving forgiveness, and self-forgiveness. *Counseling and Values*, *40*(2), 107–126. doi:10.1002/j.2161-007X.1996.tb00844.x

Erdur-Baker, Ö., & Bugay, A. (2012). The Turkish version of the Ruminative Response Scale: An examination of its reliability and validity. *The International Journal of Educational and Psychological Assessment*, *10*(2), 1–16.

Eum, K., & Rice, K. G. (2011). Test anxiety, perfectionism, goal orientation, and academic performance. *Anxiety, Stress & Coping*, *24*(2), 167–178. doi:10.1080/10615806.2010.488723

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: SAGE Publications. doi:10.1234/12345678

Fischer, W. F. (1970). *Theories of anxiety*. New York: Harper & Row.

Flaxman, P. E., Blackledge, J. T., & Bond, F. W. (2011). *Acceptance and commitment therapy: The CBT distinctive features series*. Hove: Routledge.

Flett, G. L., & Hewitt, P. L. (2002). Perfectionism and maladjustment: An overview of theoretical, definitional, and treatment issues. In P. L. Hewitt & G. L. Flett (Eds.), *Perfectionism* (pp. 5–31). Washington, DC: American Psychological Association.

Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Pocial Psychology*, *75*(5), 1363–1381. doi:10.1037/0022-3514.75.5.1363

Flett, G. L., Hewitt, P. L., Whelan, T., & Martin, T. R. (2007). The perfectionism cognitions inventory: Psychometric properties and associations with distress and deficits in cognitive self-management. *Journal of Rational - Emotive and Cognitive - Behavior Therapy*, *25*(4), 255–277. doi:10.1007/s10942-007-0055-4

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Flett, G. L., Molnar, D. S., Nepon, T., & Hewitt, P. L. (2012). A mediational model of perfectionistic automatic thoughts and psychosomatic symptoms: The roles of negative affect and daily hassles. *Personality and Individual Differences*, *52*(5), 565–570. doi:10.1016/j.paid.2011.09.010

Flett, G. L., Nepon, T., & Hewitt, P. L. (2016). Perfectionism, worry, and rumination in health and mental health: A review and a conceptual framework for a cognitive theory of perfectionism. In F. Sirois & D. S. Molnar (Eds.), *Perfectionism, Health, and Well-Being* (pp. 121–155). Springer. doi:10.1007/978-3-319-18582-8

Forman, E. M., Herbert, J. D., Juarascio, A. S., Yeomans, P. D., Zebell, J. A., Goetter, E. M., & Moitra, E. (2012). The Drexel Defusion Scale: A new measure of experiential distancing. *Journal of Contextual Behavioral Science*, *1*(1–2), 55–65. doi:10.1016/j.jcbs.2012.09.001

Fraenkel, J. R. & Wallen, N. E. (2006). *How to design and evaluate research in education*. Boston: McGraw-Hill.

Furlan, L. A., Cassady, J. C., & Pérez, E. R. (2009). Adapting the Cognitive Test Anxiety Scale for use with Argentinean university students. *International Journal of Testing*, *9*(1), 3–19. doi:10.1080/15305050902733448

Gibson, H. (2014). A conceptual view of test anxiety. *Nursing Forum, 49*(4), 267–277.

Gil-Luciano, B., Ruiz, F. J., Valdivia-Salas, S., & Suárez-Falcón, J. C. (2016). Promoting psychological flexibility on tolerance tasks: Framing behavior through deictic/hierarchical relations and specifying augmental functions. *The Psychological Record*, *67*, 1–9. doi:10.1007/s40732-016-0200-5

Glaser, N. M., Blackledge, J. T., Shepherd, L. M., & Deane, F. P. (2009). Brief group ACT for anxiety. In J. T. Blackledge, J. Ciarrochi, & F. P. Deane (Eds.), *Acceptance and commitment therapy: Contemporary theory research and practice* (pp. 175–200). Sydney: Australian Academic Press. doi:10.1016/B0-12-343010-0/00001-5

Gloster, A. T., Klotsche, J., Ciarrochi, J., Eifert, G., Sonntag, R., Wittchen, H.-U., & Hoyer, J. (2017). Increasing valued behaviors precedes reduction in suffering: Findings from a randomized controlled trial using ACT. *Behaviour Research and Therapy*, *91*, 64–71. doi:10.1016/j.brat.2017.01.013

Grant, D. M., & Beck, J. G. (2010). What predicts the trajectory of rumination?: A prospective evaluation. *Journal of Anxiety Disorders*, *24*(5), 480–6. doi:10.1016/j.janxdis.2010.03.004

Griffin, B. J. (2014). *Efficacy of a self-forgiveness workbook: A randomized controlled trial with university students. (Unpublished Doctoral Thesis)*. Virginia Commonwealth University, Richmond, VA.

Grinker, R. R. (1966). The psychosomatic aspects of anxiety. In C. D. Spielberger (Ed.), *Anxiety and behavior*. New York: Academic Press.

Gutierrez, D., & Hagedorn, W. B. (2013). The toxicity of shame applications for acceptance and commitment therapy. *Journal of Mental Health Counseling*, *35*(1), 43–59.

Güler, D. (2012). *Lise son sınıf öğrencilerinin akılcı olmayan inançları ve anne - baba tutumları ile sınav kaygısı düzeyleri arasındaki ilişkinin incelenmesi. (Unpublished Master's Thesis)*. Akdeniz University, Adana.

Güneri, O. (2003). The effect of school level and gender on test anxiety. *Education and Science*, *28*(128), 3–8.

Hall, J. H., & Fincham, F. D. (2005). Self–forgiveness: The stepchild of forgiveness research. *Journal of Social and Clinical Psychology*, *24*(5), 621–637. doi:10.1521/jscp.2005.24.5.621

Hanımoğlu E. (2010). *Seviye belirleme sinavina girecek olan ilkogretim ikinci kademe ogrencilerinde sinav kaygisi, mukemmeliyetcilik ve anne-baba tutumu arasindaki iliskinin incelenmesi. (Unpublished Master's Thesis)*. Çukurova University, Adana.

Harris, P. W., Pepper, C. M., & Maack, D. J. (2008). The relationship between maladaptive perfectionism and depressive symptoms: The mediating role of rumination. *Personality and Individual Differences*, *44*(1), 150–160. doi:10.1016/j.paid.2007.07.011

Harris, R. (2006). Embracing your demons: An overview of acceptance and commitment therapy. *Psychotherapy in Australia*, *12*(4), 2–8.

Harris, R. (2013). *Getting unstuck in ACT*. Oakland, CA: New Harbinger.

Hayes, S. C., Barnes-Holmes, D., & Roche, B. (2001). *Relational frame theory: A post- Skinnerian account of human language and cognition*. (S. C. Hayes, D. Barnes-Holmes, & B. Roche, Eds.). New York: Kluwer Academic/Plenum Publishers.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*(4), 408–420. doi:10.1080/03637750903310360

Hayes, S. C., Bond, F. W., & Barnes-Holmes, D. (2006). Expanding the scope of organizational behavior management : Relational frame theory and the experimental analysis of complex human behavior. *Journal of Organizational Behavior Management*, *26*(1), 25–54. doi:10.1300/J075v26n01

Hayes, S. C., & Lillis, J. (2012). *Acceptance and commitment therapy: Theories of psychotherapy series*. Washington, DC: American Psychological Association.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, *44*(1), 1–25. doi:10.1016/j.brat.2005.06.006

Hayes, S. C., & Smith, S. (2005). *Get out of your mind & into your life: The new acceptance & commitment therapy*. Oakland, CA: New Harbinger. doi:10.1007/s13398-014-0173-7.2

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd ed.). New York: The Guilford Press. doi:10.1017/CBO9781107415324.004

Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: The Guilford Press.

Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., … M.Mccurry, S. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, *54*(4), 553–578. doi:10.1017/CBO9781107415324.004

Hayes, S., Strosahl, K., Bunting, K., Twohig, M., & Wilson, K. G. (2010). What is acceptance and commitment therapy? In S. C. Hayes & K. Strosahl (Eds.), *A

practical guide to acceptance and commitment therapy. New York: Springer.

Hayes, S., Strosahl, K., & Wilson, K. G. (2003). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: The Guilford Press.

Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research*, *58*(1), 47–77. doi:10.3102/00346543058001047

Herzberg, K. N., Sheppard, S. C., Forsyth, J. P., Credé, M., Earleywine, M., & Eifert, G. H. (2012). The Believability of Anxious Feelings and Thoughts Questionnaire (BAFT): A psychometric evaluation of cognitive fusion in a nonclinical and highly anxious community sample. *Psychological Assessment*, *24*(4), 877–891. doi:10.1037/a0027782

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, *60*(3), 456--470.

Hewitt, P. L., Mikail, S. F., Flett, G. L., Tasca, G. A., Flynn, C. A., Deng, X., … Chen, C. (2015). Psychodynamic/interpersonal group psychotherapy for perfectionism: Evaluating the effectiveness of a short-term treatment. *Psychotherapy*, *52*(2), 205–217. doi:10.1037/pst0000016

Hill, K. T., & Wigfield, A. (1984). Test anxiety: A major educational problem and what can be done about it. *The Elementary School Journal*, *85*(1), 105–126. doi:10.1086/461395

Hill, R. W., Huelsman, T. J., & Araujo, G. (2010). Perfectionistic concerns suppress associations between perfectionistic strivings and positive life outcomes. *Personality and Individual Differences*, *48*(5), 584–589. doi:10.1016/j.paid.2009.12.011

Hinton, D. E., & Kirmayer, L. J. (2017). The flexibility hypothesis of healing. *Culture, Medicine and Psychiatry*, *41*, 3–34. doi:10.1007/s11013-016-9493-8

Hinton, M. J., & Gaynor, S. T. (2010). Cognitive defusion for psychological distress, dysphoria, and low self-esteem: A randomized technique evaluation trial of vocalizing strategies. *International Journal of Behavioral Consultation and Therapy*, *6*(3), 164–185.

Hodapp, V., & Benson, J. (1997). The multidimensionality of test anxiety: A test of different models. *Anxiety, Stress & Coping*, *10*(3), 219–244. doi:10.1080/10615809708249302

Holmgren, M. R. (1998). Self–forgiveness and responsible moral agency. *The Journal of Value Inquiry*, *32*(1), 75–91. doi:10.1023/A:1004260824156

Hong, R. Y. (2007). Worry and rumination: Differential associations with anxious and depressive symptoms and coping behavior. *Behaviour Research and Therapy*, *45*(2), 277–290. doi:10.1016/j.brat.2006.03.006

Hong, Y. J., & Jacinto, G. A. (2011). Six step therapeutic process to facilitate forgiveness of self and others. *Clinical Social Work Journal*, *40*(3), 366–375. doi:10.1007/s10615-011-0377-7

Hooper, N., & Larsson, A. (2015). *The research journey of acceptance and commitment therapy (ACT)*. New York: Palgrave Macmillan. doi:10.1007/s13398-014-0173-7.2

Hooper, N., & McHugh, L. (2013). Cognitive defusion versus thought distraction in the mitigation of learned helplessness. *Psychological Record*, *63*, 209–218. doi:10.11133/j.tpr.2013.63.1.016

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. doi:10.1080/10705519909540118

Huberty, T. J., & Dick, A. C. (2006). Performance and test anxiety. In G. G. Bear & K. M. Minke (Eds.), *Children's needs III: Development, prevention, and intervention* (pp. 281–291). Bethesda, MD: NASP Publications.

Hulbert-Williams, N. J., Storey, L., & Wilson, K. G. (2015). Psychological interventions for patients with cancer: Psychological flexibility and the potential utility of acceptance and commitment therapy. *European Journal of Cancer Care*, *24*, 15–27. doi:10.1111/ecc.12223

Jacinto, G. A., & Edwards, B. L. (2011). Therapeutic stages of forgiveness and self-forgiveness. *Journal of Human Behavior in the Social Environment*, *21*(4), 423–

437. doi:10.1080/15433714.2011.531215

Jackson, S. L. (2011). *Research methods and statistics: A critical thinking approach* (Internatio). Belmont, CA: Wadsworth Cengage Learning.

Jöreskog, K.G. & Sörbom, D. (1996). *LISREL 8 User's reference guide*. Chicago: Scientific Software.

Kandemir, M. (2013). A model explaining test anxiety: Perfectionist personality traits and performance achievement goals. *International Journal of Academic Research*, *5*(5), 272–277. doi:10.7813/2075-4124.2013/5-5/B.42

Kavakci, O., Semiz, M., Kartal, A., Dikici, A., & Kugu, N. (2014). Test anxiety prevalance and related variables in the students who are going to take the university entrance examination. *Düşünen Adam The Journal of Psychiatry and Neurological Sciences*, *27*(4), 301–307. doi:10.5350/DAJPN2014270403

Kavakci, Ö., Güler, A. S. &, & Çetinkaya, S. (2011). Sınav kaygısı ve ilişkili psikiyatrik belirtiler (Test anxiety and related psychiatric symptoms). *Klinik Psikiyatri*, *14*, 7–16.

Kline, R. B. (2011a). Convergence of structural equation modeling and multilevel modeling. In M. Williams & V. W. P. (Eds.), *Handbook of methodological innovation in social research methods* (pp. 562–589). London: Sage.

Kline, R. B. (2011b). *Principles and practice of structural equation modeling* (3rd ed.). New York: Guilford Press. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Assumptions+in+Structural+Equation+Modeling#4

Knoll, R. W. (2012). *Superstitious and reassurance-seeking behaviors in test anxiety: Revisiting cognitive-behavioral models of test anxiety*. *(Unpublished Master's Thesis)*. Northern Illinois University, De Kalb, Illinois.

Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of religion and health*. New York: Oxford University Press.

Lappalainen, P., Granlund, A., Siltanen, S., Ahonen, S., Vitikainen, M., Tolvanen, A., & Lappalainen, R. (2014). ACT internet-based vs face-to-face? A randomized controlled trial of two ways to deliver acceptance and commitment therapy for depressive symptoms: An 18-month follow-up. *Behaviour Research*

and Therapy, *61*, 43–54. doi:10.1016/j.brat.2014.07.006

Levin, M. E., Hildebrandt, M. J., Lillis, J., & Hayes, S. C. (2012). The impact of treatment components suggested by the psychological flexibility model: A meta-analysis of laboratory-based component studies. *Behavior Therapy*, *43*(4), 741–756. doi:10.1016/j.beth.2012.05.003

Little, R. J. A. (1992). Regression with missing x's: A review. *Journal of the American Statistical Association*, *87*(420), 1227–1237. doi:10.2307/2290664

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling: A Multidisciplinary Journal*, *9*(2), 233–255. doi:10.1207/S15328007SEM0902

Luciano, C., Rodríguez, M., & Gutiérrez, O. (2004). A proposal for synthesizing verbal contexts in experiential avoidance disorder and acceptance and commitment therapy. *International Journal of Psychology and Psychological Therapy*, *4*(1), 377–394.

Luciano, C., Valdivia-Salas, S., Ruiz, F. J., Rodríguez-Valverde, M., Barnes-Holmes, D., Dougher, M. J., … Gutierrez-Martínez, O. (2014). Effects of an acceptance/defusion intervention on experimentally induced generalized avoidance: A laboratory demonstration. *Journal of the Experimental Analysis of Behavior*, *101*(1), 94–111. doi:10.1002/jeab.68

Luskin, F. (2002). *Forgive for good: A proven prescription for health and happiness*. San Francisco, CA: Harper.

Lyubomirsky, S., Caldwell, N. D., & Nolen-Hoeksema, S. (1998). Effects of ruminative and distracting responses to depressed mood on retrieval of autobiographical memories. *Journal of Personality and Social Psychology*, *75*(1), 166–177. doi:10.1037/0022-3514.75.1.166

Lyubomirsky, S., & Nolen-Hoeksema, S. (1993). Self-perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology*, *65*(2), 339–349. doi:10.1037/0022-3514.65.2.339

Lyubomirsky, S., Tucker, K. L., Caldwell, N. D., & Berg, K. (1999). Why ruminators are poor problem solvers: Clues from the phenomenology of dysphoric rumination. *Journal of Personality and Social Psychology*, *77*(5),

1041–1060. doi:10.1037/0022-3514.77.5.1041

Macaskill, A. (2012). Differentiating dispositional self-forgiveness from other-forgiveness: Associations with mental health and life satisfaction. *Journal of Social and Clinical Psychology*, *31*(1), 28–50. doi:10.1521/jscp.2012.31.1.28

Maccallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling of fit involving a particular measure of model. *Psychological Methods*, *13*(2), 130–149. doi:10.1037/1082-989X.1.2.130

Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. *Journal of Abnormal and Social Psychology*, *47*(2), 166–173. doi:10.1037/h0062855

Martin, L. L., & Tesser, A. (1996). Some ruminative thoughts. *Advances in Social Cognition*, *9*, 1–47.

Masuda, A., Twohig, M. P., Stormo, A. R., Feinstein, A. B., Chou, Y.-Y., & Wendell, J. W. (2010). The effects of cognitive defusion and thought distraction on emotional discomfort and believability of negative self-referential thoughts. *Journal of Behavior Therapy and Experimental Psychiatry*, *41*(1), 11–17. doi:10.1016/j.jbtep.2009.08.006

McCracken, L. M., Barker, E., & Chilcot, J. (2014). Decentering, rumination, cognitive defusion, and psychological flexibility in people with chronic pain. *Journal of Behavioral Medicine*, *37*(6), 1215–1225. doi:10.1007/s10865-014-9570-9

McDonald, A. S. (2001). The prevalence and effects of test anxiety in school children. *Educational Psychology*, *21*(1), 89–101. doi:10.1080/01443410124641

Menahem, S., & Love, M. (2013). Forgiveness in psychotherapy: The key to healing. *Journal of Clinical Psychology*, *69*(8), 829–835. doi:10.1002/jclp.22018

Merino, H., Senra, C., & Ferreiro, F. (2016). Are worry and rumination specific pathways linking neuroticism and symptoms of anxiety and depression in patients with generalized anxiety disorder, major depressive disorder and mixed anxiety-depressive disorder? *PLoS ONE*, *11*(5), 1–15. doi:10.1371/journal.pone.0156169

Meunier, B., Atmaca, S., Ayranci, E., Gökdemir, B. P., Uyar, T., & Baştuğ, G. (2014). Psychometric properties of the Turkish version of the Acceptance and Action Questionnaire-II (AAQ-II). *Journal of Evidence-Based Psychotherapies*, *14*(2), 179–196.

Mills, J. S., & Blankstein, K. R. (2000). Perfectionism, intrinsic vs extrinsic motivation, and motivated strategies for learning: A multidimensional analysis of university students. *Personality and Individual Differences*, *29*(6), 1191–1204. doi:10.1016/S0191-8869(00)00003-9

Moffitt, R., Brinkworth, G., Noakes, M., & Mohr, P. (2012). A comparison of cognitive restructuring and cognitive defusion as strategies for resisting a craved food. *Psychology & Health*, *27*(2), 74–90. doi:10.1080/08870446.2012.694436

Mok, M. M. C. (2010). Alternative explanations for the Confucian Asian high performance and high self doubt paradox: Commentary on "Unforgiving Confucian culture: A breeding ground for high academic achievement, test anxiety and self-doubt?" by Lazar Stankov. *Learning and Individual Differences*, *20*(6), 564–566. doi:10.1016/j.lindif.2010.08.009

Mor, N., & Winquist, J. (2002). Self-focused attention and negative affect: A meta-analysis. *Psychological Bulletin*, *128*(4), 638–662. doi:10.1037/0033-2909.128.4.638

Muthen, B. & Kaplan, D. (1992). A comparison of some methodologies for the factor analysis of non-normal Likert variables: A note on the size of the model. *British Journal of Mathematical and Statistical Psychology*, *45*, 19–30.

Naveh-Benjamin, M. J., McKeachie, W., & Lin, Y. (1987). Two types of test-anxious students: Support for an information processing model. *Journal of Educational Psychology*, *79*, 131–136.

Naveh-Benjamin, M., McKeachie, W. J., Lin, Y., & Holinger, D. P. (1981). Test anxiety: Deficits in information processing. *Journal of Educational Psychology*, *73*(6), 816–824. doi:10.1037/0022-0663.73.6.816

Nevitt, J., & Hancock, G. R. (2001). Performance of bootstrapping approaches to model test statistics and parameter standard error estimation in structural equation modeling. *Structural Equation Modeling*, *8*(3), 353–377.

Niles, A. N., Burklund, L. J., Arch, J. J., Lieberman, M. D., Saxbe, D., & Craske, M. G. (2014). Cognitive mediators of treatment for social anxiety disorder: Comparing acceptance and commitment therapy and cognitive-behavioral therapy. *Behavior Therapy*, *45*(5), 664–677. doi:10.1016/j.beth.2014.04.006

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, *109*(3), 504–511. doi:10.1037/0021-843X.109.3.504

Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology*, *61*(1), 115–121. Retrieved from http://dx.doi.org/10.1037/0022-3514.61.1.115

O'Connor, D. B., O'Connor, R. C., & Marshall, R. (2007). Perfectionism and psychological distress: Evidence of the mediating effects of rumination. *European Journal of Personality*, *21*(4), 429–452. doi:10.1002/per.616

Olsson, U. H., Foss, T., Troye, S. V., & Howell, R. D. (2000). The performance of ML, GLS, and WLS estimation in structural equation modeling under conditions of misspecification and nonnormality. *Structural Equation Modeling: A Multidisciplinary Journal*, *7*(4), 557–595. doi:10.1207/S15328007SEM0704_3

Orsillo, S. M., & Roemer, L. (2011). *The mindful way through anxiety: Break free from chronic worry and reclaim your life* (1st ed.). New York: The Guilford Press.

Öst, L.-G. (2014). The efficacy of acceptance and commitment therapy: An updated systematic review and meta-analysis. *Behaviour Research and Therapy*, *61*, 105–121. doi:10.1016/j.brat.2014.07.018

Pennato, T., Berrocal, C., Bernini, O., & Rivas, T. (2013). Italian version of the Acceptance and Action Questionnaire-II (AAQ-II): Dimensionality, reliability, convergent and criterion validity. *Journal of Psychopathology and Behavioral Assessment*, *35*(4), 552–563. doi:10.1007/s10862-013-9355-4

Penney, A. M., Miedema, V. C., & Mazmanian, D. (2015). Intelligence and emotional disorders: Is the worrying and ruminating mind a more intelligent mind? *Personality and Individual Differences*, *74*, 90–93. doi:10.1016/j.paid.2014.10.005

Pilecki, B. C., & Mckay, D. (2012). An experimental investigation of cognitive defusion. *The Psychological Record*, *62*, 19–40.

Pirbaglou, M. (2013). *Perfectionism cognitions, anxiety, and depressive distress: Evidence for the mediating role of negative automatic thoughts and anxiety sensitivity. (Unpublished Master's Thesis)*. York University, Toronto.

Putwain, D. W., Woods, K. A., & Symes, W. (2010). Personal and situational predictors of test anxiety of students in post-compulsory education. *British Journal of Educational Psychology*, *80*(1), 137–160. doi:10.1348/000709909X466082

Raes, F. (2010). Rumination and worry as mediators of the relationship between self-compassion and depression and anxiety. *Personality and Individual Differences*, *48*(6), 757–761. doi:10.1016/j.paid.2010.01.023

Rana, R., & Mahmood, N. (2010). The relationship between test anxiety and academic achievement. *Bulletin of Education and Research*, *32*(2), 63–74.

Roberts, S. L., & Sedley, B. (2016). Acceptance and commitment therapy with older adults: Rationale and case study of an 89-year-old with depression and generalized anxiety disorder. *Clinical Case Studies*, *15*(1), 53–67. doi:10.1177/1534650115589754

Robinson, A. E. (2009). *Test anxiety difference as a function of gender in African American college students*. (*Unpublished Master's Thesis)*. Tennessee State University, Nashville, TN.

Ross, S. R., Hertenstein, M. J., & Wrobel, T. A. (2007). Maladaptive correlates of the failure to forgive self and others: Further evidence for a two-component model of forgiveness. *Journal of Personality Assessment*, *88*(2), 158–167. doi:10.1080/00223890701267985

Ruiz, F. J. (2012). Acceptance and commitment therapy versus traditional cognitive behavioral therapy: A systematic review and meta-analysis of current empirical evidence. *International Journal of Psychology & Psychological Therapy*, *12*(3), 333–357.

Ruiz, F. J. (2014). The relationship between low levels of mindfulness skills and pathological worry: The mediating role of psychological inflexibility. *Anales de*

Psicología, *30*(3), 887–897. doi:10.6018/analesps.30.3.150651

Sabourin, & B. (2013). *Can distress tolerance predict chronic worry? Investigating the relationships among worry, distress tolerance, cognitive avoidance, psychological flexibility, difficulties in emotion regulation, and anxiety sensitivity. (Unpublished Master's Thesis)*. Eastern Michigan University, Ypsilanti, Michigan.

Santanello, A. W., & Gardner, F. L. (2007). The role of experiential avoidance in the relationship between maladaptive perfectionism and worry. *Cognitive Therapy and Research*, *31*(3), 319–332. doi:10.1007/s10608-006-9000-6

Sarason, I. G. (1959). Intellectual and personality correlates of test anxiety. *The Journal of Abnormal and Social Psychology*, *59*(2), 272–275. doi:10.1037/h0042200

Sarason, I. G. (1980). Introduction to the study of test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 3–14). Hillsdale, NJ: Erlbaum.

Sarason, I. G. (1986). Test anxiety, worry, and cognitive interference. In R. Schwarzer (Ed.), *Self-related cognitions in anxiety and motivation* (pp. 19–33). New Jersey: Lawrence Erlbaum Associates.

Sarason, S. B., Davidson, K. S., & Lighthall, F. F. (1960). *Anxiety in elementary school children*. New York: Wiley.

Sattler, S., & Wiegel, C. (2013). Cognitive test anxiety and cognitive enhancement: The influence of students' worries on their use of performance-enhancing drugs. *Substance Use & Misuse*, *48*, 220–232. doi:10.3109/10826084.2012.751426

Savalei, V. (2008). Is the ML chi-square ever robust to nonnormality? A cautionary note with missing data. *Structural Equation Modeling: A Multidisciplinary Journal*, *15*(1), 1–22. doi:10.1080/10705510701758091

Schumacker, R. E., & Lomax, R. G. (2010). *A beginners guide to structural equation modeling*. New York: Routledge.

Seipp, B., & Schwarzer, C. (1996). Cross-cultural anxiety research: A review. In C. Schwarzer & M. Zeidner (Eds.), *Stress, anxiety, and coping in academic settings* (pp. 13–68). Tubingen, Germany: Francke-Verlag.

Sharp, K. (2012). A review of acceptance and commitment therapy with anxiety disorders. *International Journal of Psychology & Psychological Therapy*, *12*(3), 359–372.

Sohrabi, R., Mohammadi, A., & Delavar, A. (2013). Role and effectiveness of mind fullness education on students exam anxiety. *Procedia - Social and Behavioral Sciences*, *84*(2013), 1639–1641. doi:10.1016/j.sbspro.2013.07.006

Sousa, V. D., & Rojjanasrirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice*, *17*(2), 268–274. doi:10.1111/j.1365-2753.2010.01434.x

Soysa, C. K., & Weiss, A. (2014). Mediating perceived parenting styles–test anxiety relationships: Academic procrastination and maladaptive perfectionism. *Learning and Individual Differences*, *34*, 77–85. doi:10.1016/j.lindif.2014.05.004

Spielberger, C. D. (1966). The effects of anxiety on complex learning and academic achievement. In C. D. Spielberger (Ed.), *Anxiety and behavior*. New York: Academic Press.

Spielberger, C. D. (1972). *Anxiety: Current trends in theory and research*. Academic Press.

Spielberger, C. D. (1980). *Test anxiety inventory: Preliminary professional manual*. Menlo Park. CA: Mind Garden, Inc.

Spielberger, C. D., Anton, W. D., & Bedell, J. (1976). The nature and treatment of test anxiety. In D. M. Zuckerman & S. C. (Eds.), *Emotions and anxiety: New concepts, methods, and applications* (pp. 317–344). Hillsdale, NJ: Erlbaum.

Spielberger, C. D., & Vagg, P. R. (1995). *Test anxiety: Theory, assessment, and treatment (clinical and community psychology)*. Taylor & Francis.

Stankov, L. (2010). Unforgiving Confucian culture: A breeding ground for high academic achievement, test anxiety and self-doubt? *Learning and Individual Differences*, *20*(6), 555–563. doi:10.1016/j.lindif.2010.05.003

Sternthal, M. J., Williams, D. R., Musick, M. A., & Buck, A. C. (2010). Depression, anxiety, and religious life: A search for mediators. *Journal of Health and Social*

Behavior, *51*(3), 343–359. doi:10.1177/0022146510378237

Stevens, J. P. (2009). *Applied multivariate statistics for the social science. Group* (5th ed.). New York, NY: Routledge. doi:10.4324/9780203843130

Stoeber, J. (2014). Multidimensional perfectionism and the DSM-5 personality traits. *Personality and Individual Differences*, *64*, 115–120. doi:10.1016/j.paid.2014.02.031

Stoeber, J., Feast, A. R., & Hayward, J. A. (2009). Self-oriented and socially prescribed perfectionism: Differential relationships with intrinsic and extrinsic motivation and test anxiety. *Personality and Individual Differences*, *47*(5), 423–428. doi:10.1016/j.paid.2009.04.014

Strosahl, K. D., & Robinson, P. J. (2009). Teaching ACT: To whom, why and how. In J. T. Blackledge, J. Ciarrochi, & F. P. Deane (Eds.), *Acceptance and commitment therapy: Contemporary theory research and practice* (1st ed., pp. 59–85). Sydney: Australian Academic Press. doi:10.1016/B0-12-343010-0/00001-5

Suinn, R. M. (1968a). The desensitization of test-anxiety by group and individual treatment. *Behaviour Research and Therapy*, *6*(3), 385–387. doi:10.1016/0005-7967(68)90071-5

Suinn, R. M. (1968b). The desensitization of test-anxiety by group and individual treatment. *Behaviour Research and Therapy*, *6*(3), 385–387. doi:10.1016/0005-7967(68)90071-5

Swain, J., Hancock, K., Dixon, A., Koo, S., & Bowman, J. (2013). Acceptance and commitment therapy for anxious children and adolescents: Study protocol for a randomized controlled trial. *Trials*, *14*(1), 140. doi:10.1186/1745-6215-14-140

Swain, J., Hancock, K., Hainsworth, C., & Bowman, J. (2013). Acceptance and commitment therapy in the treatment of anxiety: A systematic review. *Clinical Psychology Review*, *33*(8), 965–978. doi:10.1016/j.cpr.2013.07.002

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics. Boston: Pearson Education*. Boston: Pearson Education. doi:10.1037/022267

Taşdemir, O. (2003). *Üstün yetenekli çocuklarda mükemmeliyetçilik, sınav kaygısı, benlik saygısı, kontrol odağı, öz-yeterlilik ve problem çözme becerileri arasındaki ilişkinin incelenmesi. (Unpublished Master's Thesis)*. Karadeniz

Teknik Universitesi, Trabzon.

Terzino, K. A. (2010). *Self-forgiveness for interpersonal and intrapersonal transgressions. (Unpublished Doctoral Thesis)*. Iowa State University, Ames, Iowa.

Thompson, B., & Melancon, J. G. (1996). *Using item "Testlest"/"Parcels" in confirmatory factor analysis: An example using the PPSDQ-78*.

Thompson, J. G. (2013). *The psychobiology of emotions*. New York: Springer Science & Business Media.

Thompson, L. Y., Snyder, C. R., Hoffman, L., Michael, S. T., Rasmussen, H. N., Billings, L. S., … Roberts, D. E. (2005). Dispositional forgiveness of self, others, and situations. *Journal of Personality*, *73*(2), 313–59. doi:10.1111/j.1467-6494.2005.00311.x

Toussaint, L., Barry, M., Bornfriend, L., & Markman, M. (2014). Restore: The journey toward self-forgiveness: A randomized trial of patient education on self-forgiveness in cancer patients and caregivers. *Journal of Health Care Chaplaincy*, *20*(2), 54–74. doi:10.1080/08854726.2014.902714

Toussaint, L. L., Williams, D. R., Musick, M. A., & Everson, S. A. (2001). Forgiveness and health: Age differences in a U.S. probability sample. *Journal of Adult Development*, *8*(4), 249–257. doi:10.1023/A:1011394629736

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research*, *27*(3), 247–259. doi:10.1023/A:1023910315561

Valenaş, S. P., & Szentagótái-Tatar, A. (2015). The relationships between stress, negative affect, rumination and social anxiety. *Journal of Evidence-Based Psychotherapies*, *15*(2), 179–189.

Valure, S. (2015). *Knowledge and stigmatization of test anxiety in a college sample. (Unpublished Master's Thesis)*. Southeastern Louisiana University. UMI Number: 1595543.

Vowles, K. E., & McCracken, L. M. (2010). Comparing the role of psychological flexibility and traditional pain management coping strategies in chronic pain treatment outcomes. *Behaviour Research and Therapy*, *48*(2), 141–146.

doi:10.1016/j.brat.2009.09.011

Webb, J. R., Robinson, E. A. R., & Brower, K. J. (2009). Forgiveness and mental health among people entering outpatient treatment with alcohol problems. *Alcoholism Treatment Quarterly*, *27*(4), 368–388. doi:10.1080/07347320903209822

Weiner, B. A., & Carton, J. S. (2012). Avoidant coping: A mediator of maladaptive perfectionism and test anxiety. *Personality and Individual Differences*, *52*(5), 632–636. doi:10.1016/j.paid.2011.12.009

Wells, A., & Carter, K. E. P. (2009). Maladaptive thought control strategies in generalized anxiety disorder, major depressive disorder, and nonpatient groups and relationships with trait anxiety. *International Journal of Cognitive Therapy*, *2*(3), 224–234. doi:10.1521/ijct.2009.2.3.224

Wenzel, M., Woodyatt, L., & Hedrick, K. (2012). No genuine self-forgiveness without accepting responsibility: Value reaffirmation as a key to maintaining positive self-regard. *European Journal of Social Psychology*, *42*(5), 617–627.

Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. (1977). Assessing Reliability and Stability in Panel Models. *Sociological Methodology*, *8*(1), 84–136.

White, R. G., Gumley, A. I., McTaggart, J., Rattrie, L., McConville, D., Cleare, S., & Mitchell, G. (2013). Depression and anxiety following psychosis: Associations with mindfulness and psychological flexibility. *Behavioural and Cognitive Psychotherapy*, *41*(1), 34–51. doi:10.1017/S1352465812000239

Wild, D., Grove, A., Martin, M., Eremenco, S., McElroy, S., Verjee-Lorenz, A., & Erikson, P. (2005). Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: Report of the ISPOR Task Force for Translation and Cultural Adaptation. *Value in Health*, *8*(2), 94–104. doi:10.1111/j.1524-4733.2005.04054.x

Wohl, M. J. A., Deshea, L., & Wahkinney, R. L. (2008). Looking within: Measuring state self-forgiveness and its relationship to psychological well-being. *Canadian Journal of Behavioural Science*, *40*(1), 1–10.

Wong, S. S. (2008). The relations of cognitive triad, dysfunctional attitudes, automatic thoughts, and irrational beliefs with test anxiety. *Current Psychology*,

27(3), 177–191. doi:10.1007/s12144-008-9033-y

Yang, M. J., Kim, B. N., Lee, E. H., Lee, D., Yu, B. H., Jeon, H. J., & Kim, J. H. (2014). Diagnostic utility of worry and rumination: A Comparison between generalized anxiety disorder and major depressive disorder. *Psychiatry and Clinical Neurosciences*, *68*(9), 712–720. doi:10.1111/pcn.12193

Yıldırım, İ. (2007). Depression, test anxiety, and social support among Turkish students preparing for the university entrance examination. *Eurasian Journal of Educational Research*, *29*, 171–184.

Yoğurtçu, K., & Yoğurtçu, G. (2013). Effect of learning anxiety of foreign language as Turkish on academic achievement. *Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (11), 1115–1158.

Yu, X., Chen, J., Liu, J., Yu, X., & Zhao, K. (2015). Dispositional optimism as a mediator of the effect of rumination on anxiety. *Social Behavior & Personality*, *43*(8), 1233–1242. doi:10.2224/sbp.2015.43.8.1233

Zanon, C., Hutz, C. S., Reppold, C. T., & Zenger, M. (2016). Are happier people less vulnerable to rumination, anxiety, and post-traumatic stress? Evidence from a large scale disaster. *Psicologia: Reflexão E Crítica*, *29*(1), 1–7. doi:10.1186/s41155-016-0038-4

Zeidner. (1998). *Test anxiety: The state of the art*. New York: Plenum Press.

Zeidner, M. (1996). How do high school and college students cope with test situations? *British Journal of Educational Psychology*, *66*(1), 115–128. doi:10.1111/j.2044-8279.1996.tb01181.x

Zettle, R. D. (2003). Acceptance and commitment therapy (ACT) vs. systematic desensitization in treatment of mathematics anxiety. *The Psychological Record*, *53*(2), 197–215.

Zettle, R. D., Barner, S. L., & Gird, S. (2009). ACT with depression: The role of forgiving. In J. T. Blackledge, J. Ciarrochi, & F. . Deane (Eds.), *Acceptance and commitment therapy: Contemporary theory research and practice* (1st ed., pp. 151–173). Sydney: Australian Academic Press.

APPENDICES

APPENDIX A
APPROVAL LETTER FROM MIDDLE EAST TECHNICAL UNIVERSITY
HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

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Sayı: 28620816 / 384

03 KASIM 2015

Gönderilen: Prof. Dr. Oya Yerin GÜNERİ

Psikoloji Bölümü

Gönderen: Prof. Dr. Canan SÜMER

İnsan Araştırmaları Komisyonu Başkanı

İlgi: Etik Onayı

Danışmanlığını yapmış olduğunuz Doktora Öğrencisi Gökçen AYDIN'ın "Hazırlık Okulu Öğrencilerinin Sınav Kaygılarını Yordayan Değişkenler" isimli araştırması İnsan Araştırmaları Komisyonu tarafından uygun görülerek gerekli onay 01.11.2015-30.06.2016 tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Canan SÜMER

Uygulamalı Etik Araştırma Merkezi

İnsan Araştırmaları Komisyonu Başkanı

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ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

Sayı: 28620816/ 177 —361

13.04.2015

Gönderilen :   Prof.Dr. Oya Yerin Güneri
                     Eğitim Bilimleri Bölümü

Gönderen :   Prof. Dr. Canan Sümer
                     IAK Başkan Vekili

İlgi   :   Etik Onayı

Danışmanlığını yapmış olduğunuz Psikolojik Danışmanlık ve Rehberlik Bölümü öğrencisi Gökçen Aydın'ın ""**Perfectionism Cognitions Scale (Mükemmelliyetçi Düşünceler Envanteri)**", "**Drexel Defusion Scale (Drexel Ayrışma Ölçeği)**" ve "**State Self Forgiveness Scale (Durumsal Kendini Affetme Ölçeği)**" ölçeklerinin Türkçe'ye uyarlanma çalışması" isimli araştırması "İnsan Araştırmaları Komitesi" tarafından uygun görülerek gerekli onay verilmiştir.

Bilgilerinize saygılarımla sunarım.

Etik Komite Onayı

Uygundur

13/04/2015

Prof.Dr. Canan Sümer
Uygulamalı Etik Araştırma Merkezi
(UEAM) Başkan Vekili
ODTÜ 06531 ANKARA

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APPENDIX B

STATE SELF-FORGIVENESS SCALE PERMISSION LETTER

From: Gökçen Aydın <agokcen@metu.edu.tr>
To: Michael.Wohl@carleton.ca
Sent: Tuesday, December 16, 2014 10:08 AM
Subject: About State Self-Forgiveness Scale

Hello Michael J. A. Wohl,

I am a PhD student and research assistant at Middle East Technical University, Turkey. Nowadays, I am working on my thesis and it is about self-forgiveness. While I am reading the literature, I have come across with your State Self Forgiveness Scale. As I have searched, there is no Turkish adaptation of the scale.

I will be appreciated if you give me the permission to adapt your scale into Turkish and use it in my thesis to gather information about self-forgiveness.

Thank you.
Best Regards,

Gokcen Aydin
Middle East Technical University
Faculty of Education-Psychological Counseling and Guidance Program

On Tuesday, December 16, 2014 at 6.10 PM, Wohl, Michael J. A. <Michael.Wohl@carleton.ca > wrote:

By all means. Good luck with the research.

Michael J. A. Wohl, Ph.D.
Professor
Department of Psychology, Carleton University
Ottawa, ON, CANADA, K1S 5B6, PHONE: 613.520.2600 x 2908   FAX: 613.520.3667, http://www.carleton.ca/~mwohl

APPENDIX C

PERFECTIONISM COGNITIONS INVENTORY PERMISSION LETTER

From: Gökçen Aydın <agokcen@metu.edu.tr>
To: phewitt@psych.ubc.ca
Sent: Wednesday, March 4, 2015 12:08 AM
Subject: About Perfectionism Cognitions Inventory

Hello Dr. P. L. Hewitt,

I am a PhD student at Middle East Technical University, Turkey. Nowadays, I am working on my PhD thesis and I am planning to work on perfectionism cognitions and test anxiety. While searching the literature, I have come across with your Perfectionism Cognitions Inventory which is very suitable for me to use. If I am not mistaken, there is no Turkish adaptation of the scale.

I will be very happy if you give me the permission to adapt your scale into Turkish and use it in my thesis to gather information about perfectionism cognitions. By the way, I have sent an e-mail to Dr. Flett, but got an auto response that Flett will not be available until July.

Thank you.
Best Regards,

Gokcen Aydin
Middle East Technical University
Faculty of Education-Psychological Counseling and Guidance Program

On Wednesday, March 4, 2015 at 8:00 PM, Dr. Paul L. Hewitt <phewitt@psych.ubc.ca> wrote:

Hello. I would be happy to have our measure translated and used in your research. Please feel free to do so. You can find the measure at my website: http://hewittlab.psych.ubc.ca/

Dr. Paul L. Hewitt, R. Psych.
Professor of Psychology and Clinical Psychologist
University of British Columbia

APPENDIX D

DREXEL DEFUSION SCALE PERMISSION LETTER

From: Gökçen Aydın <agokcen@metu.edu.tr>
To: evan.forman@drexel.edu
Sent: Tuesday, December 16, 2014 6:09 PM
Subject: About Drexel Cognitive Defusion Scale

Hello Evan Forman,

I am a PhD student at Middle East Technical University, Turkey. Nowadays, I am working on my thesis and I am planning to work on Acceptance and Commitment Therapy. I have come across with your Drexel Cognitive Defusion Scale. As I have searched, there is no Turkish adaptation of the scale.

I will be very happy if you give me permission to adapt your scale into Turkish and use it in my thesis to gather information about cognitive defusion.

Thank you.
Best Regards,

Gokcen Aydin
Middle East Technical University
Faculty of Education-Psychological Counseling and Guidance Program

---

On Tuesday, December 16, 2014 at 8:55 PM, Forman,Evan" <emf27@drexel.edu> wrote:

Yes, I would be happy for you to develop a Turkish version of the Drexel Defusion Scale.

Best,

Evan M. Forman, Ph.D., evan.forman@drexel.edu
Professor
Director of Graduate Studies, Department of Psychology

Chair, Committee on Science and Practice
Drexel University, Stratton 282, 3141 Chestnut Street, Philadelphia, PA 19104

APPENDIX E

COGNITIVE TEST ANXIETY SCALE PERMISSION LETTER

From: Gökçen Aydın <agokcen@metu.edu.tr>
To: sdbozkurt@hotmail.com
Sent: Wednesday, December 31, 2014 11:01 AM
Subject: Cognitive Test Anxiety Ölçeği hk.

Sayın Satı Bozkurt Hocam merhaba,

Ben Orta Doğu Teknik Üniversitesi Öğrenme ve Öğrenci Gelişim Birimi'nde Araştırma Görevlisi olarak çalışıyorum. Aynı zamanda Rehberlik ve Psikolojik Danışmanlık programında doktora öğrencisiyim. Tezimi sınav kaygısını yordayan değişkenler kapsamında çalışıyorum. Bu bağlamda Jerrell Cassady'nin Cognitive Test Anxiety ölçeğinin uygunluğunu gördüm. Kendisine izin için yazdığımda sizin çalıştığınızı söyledi ve bizim iletişime geçmemiz için de bir e-posta göndermiş.

Siz çalışmanızda hangi aşamadasınız diye sormak istedim. Ölçeğin adaptasyonu tamamladınız mı? Ben en son araştırmamda ölçeğin Türkçe adaptasyonu yapılmış çalışmaya rastlamadım. Ben de ölçeği uyarlayarak tezimde kullanmak istemiştim. Ancak siz uyarlıyorsanız sizin bulgularınız doğrultusunda izninizle ben de kullanmak isterim.

Saygılarımla
Gökçen Aydın, Araş. Gör.
Öğrenme ve Öğrenci Gelişim Birimi
Orta Doğu Teknik Üniversitesi
03122107161

On Wednesday, December 31, 2014 12:34 PM, satı bozkurt <sdbozkurt@hotmail.com> wrote:

Sevgili Gökçen,

Öncelikle aynı alana ilgi duyan birini tanımaktan memnuniyet duyduğumu belirtmek isterim. Biz bu ölçeği lise ve üniversite grubunda ayrı ayrı çalışıyoruz. Epey ilerlemiş durumdayız. Doktora çalışman da bu ölçeği kullanman bizim için memnuniyet verici olacaktır. Detayları konuşmak için beni arayabilirsin. Çalışmalarında başarılar dilerim.

Satı BOZKURT

ACCEPTANCE AND ACTION QUESTIONNAIRE-II
PERMISSION LETTER

From: Gökçen Aydın <agokcen@metu.edu.tr>

To: bhr.topcu@metu.edu.tr

Sent: Friday, March 20, 2015 11:13 AM

Subject: Kabullenme ve Eylem Ölçeği II hk.

Sayın Bahar Meunier merhaba,

İsmim Gökçen Aydın, Orta Doğu Teknik Üniversitesi Eğitim Fakültesi Psikolojik Danışmanlık ve Rehberlik programı doktora öğrenciyim. Doktora tezim kapsamında "psychological flexibility" çalışıyorum. Bu doğrultuda uyarlamasını yaptığınız "Kabullenme ve Eylem Ölçeği"ni izniniz olursa kullanmak istiyorum. Teşekkür ediyorum, iyi günler dilerim.

Saygılarımla

Gökçen Aydın, Araş. Gör.

Öğrenme ve Öğrenci Gelişim Birimi (ÖGEB)

Orta Doğu Teknik Üniversitesi

On Friday, March 20, 2015 3:06 PM, Bahar Meunier <bhr.topcu@gmail.com> wrote:

Gökçen Hanım merhaba,

Ekte ölçeği ve makalemizi bulabilirsiniz, gerçi büyük ihtimalle sizde vardır. Tezinizde başarılar.

Uzm. Psk. Bahar Meunier

RUMINATIVE RESPONSE SCALE PERMISSION LETTER

From: Gökçen Aydın <agokcen@metu.edu.tr>
To: asli.bugay@tedu.edu.tr
Sent: Wednesday, August 12, 2015 4:04 PM
Subject: Ruminasyon Ölçeği kullanım izni hk.

Aslı Hocam merhaba,

İsmim Gökçen, ODTÜ Psikolojik Danışmanlık ve Rehberlik bölüünde doktora öğrenciyim.

Aynı zamanda Öğrenme ve Öğrenci Gelişim Birimi'nde çalışıyorum. Özgür Hocamla uyarlamasını yaptığınız Ruminasyon ölçeğinizi kullanabilmek için Özgür hocaya mail atmıştım, size yönlendirdiğini söyledi ancak ben yine de herhangi bir karışıklığı önlemek adına size mail atmak istedim. Tezim kapsamında kullanmam için izin verirseniz çok sevinirim.

Saygılarımla

Gökçen Aydın, Araş. Gör.
Öğrenme ve Öğretmeyi Geliştirme Uygulama Araştırma Merkezi (ÖGEM)
Orta Doğu Teknik Üniversitesi

On Friday, August 14, 2015 11:10 AM, Aslı Bugay <asli.bugay@tedu.edu.tr> wrote:

Merhaba Gökçen,

Ekte ölçeği ve ölçeğe ait makale çalışmasını bulabilirsin. Çalışmanda başarılar dilerim.

İyi günler,

Aslı

APPENDIX H

INFORMED CONSENT FORM

Gönüllü Katılım Formu

Bu çalışma, ODTÜ Eğitim Fakültesi Eğitim Bilimleri Rehberlik ve Psikolojik Danışmanlık Anabilim dalı doktora öğrencisi Gökçen Aydın tarafından Prof. Dr. Oya Yerin Güneri danışmanlığında yürütülmektedir. Çalışmanın amacı, doktora tezi kapsamında Hazırlık okulu öğrencilerinin sınav kaygılarını yordayan değişkenleri araştırmaktır.

Çalışmaya katılım gönüllülük esasına dayanmaktadır. Çalışma kapsamında uygulanacak anketlerde sizden kimliğinizi belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız tamamen gizli tutulacak ve sadece araştırmacı tarafından değerlendirilecektir. Elde edilecek bilgiler sadece bilimsel amaçlı kullanılacaktır. Anketler, genel olarak kişisel rahatsızlık verecek sorular içermemektedir. Ancak, soruları cevaplarken sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz anketleri yarıda bırakabilirsiniz. Böyle bir durumda anketi uygulayan kişiye, anketi tamamlamadığınızı söylemeniz yeterli olacaktır. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için Araş. Gör. Gökçen Aydın ile (Tel: (312) 210 71 61; e-posta: agokcen@metu.edu.tr) iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman soruları cevaplandırmayı bırakabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum. (Forma onay verdikten sonra anketi cevaplayınız).

Ad-Soyad   Tarih   İmza

APPENDIX I

DEMOGRAPHIC INFORMATION FORM

KİŞİSEL BİLGİ FORMU

Değerli katılımcı; bu çalışma Orta Doğu Teknik Üniversitesi, Eğitim Bilimleri Bölümü, Psikolojik Danışma ve Rehberlik Anabilim Dalı doktora öğrencisi Arş. Gör. Gökçen AYDIN tarafından Prof. Dr. Oya YERİN GÜNERİ danışmanlığında yürütülmektedir. Çalışmanın amacı, Temel İngilizce Bölümü öğrencilerinin sınav kaygılarını yordayan değişkenleri araştırmaktır. Bu çalışmaya katılmak yaklaşık 15 dakikanızı alacaktır. Soruları yanıtlarken sizi en doğru ifade eden seçeneği işaretlemeniz ve samimi olmanız, ayrıca soruları boş bırakmamanız önemlidir. Çalışmaya katılım tamamen gönüllülük esasına dayanmaktadır. Anket sorularında sizden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir.

Katılımınız için teşekkür ederim.

Arş. Gör. Gökçen AYDIN
Orta Doğu Teknik Üniversitesi
Öğrenme ve Öğretmeyi Geliştirme Merkezi (ÖGEM)
agokcen@metu.edu.tr

Kişisel Bilgi Formu

1. Cinsiyetiniz: ☐ Kadın   ☐ Erkek

2. Yaşınız: ....

3. Hazırlık sınıfında hangi düzeyde İngilizce öğreniyorsunuz?

    ☐ Başlangıç Düzeyi (Beginner's Level)

    ☐ Orta Altı Düzey (Pre-Intermediate Level)

    ☐ Düşük Düzey (Elementary Level)

    ☐ Orta Düzey (Intermediate Level)

    ☐ Orta Üstü Düzey (Upper-Intermediate Level)

    ☐ İleri Düzey (Advanced)

    ☐ Tekrar (Repeat)

4. Bölümünüz: ....

SAMPLE ITEMS FROM COGNITIVE TEST ANXIETY SCALE

Bilişsel Sınav Kaygısı Ölçeği (BSKÖ)

Aşağıda sınav dönemlerinde yaşanabilecek duygu ve düşünceleri içeren ifadeler yer almaktadır. Bu ifadelerin size ne derecede uygun olduğuna karar vererek, tüm soruları eksiksiz yanıtlamaya özen gösteriniz.

	Hiç Uygun Değil	Bazen Uygun	Genellikle Uygun	Tamamen Uygun
1. Sınavlara endişelenmekten uykularım kaçar.	①	②	③	④
3.Sınavlara çalışırken, başarısız olma düşünceleri yüzünden dikkatim dağılır.	①	②	③	④
5. Bir sınava çalışırken genellikle başarısız olacağımı düşünürüm.	①	②	③	④
7.Sınav kağıdımı elime aldığımda, sakinleşerek kafamı toparlayabilmek ve nereden başlayacağıma karar vermek biraz zamanımı alır.	①	②	③	④
8. Sınavın başında o kadar endişeli olurum ki, genellikle kafamı sınava veremem.	①	②	③	④
10. Önemli bir sınav sırasında, kendimi diğer öğrencilerin benden daha iyi yapıp yapmadıklarını düşünürken bulurum.	①	②	③	④
12. Sınav sırasında kendimi başarısız olmanın sonuçlarını düşünürken bulurum.	①	②	③	④
14. Cevabı bulmak için bir soru üzerinde çok durduğumda kafam durur.	①	②	③	④
15. Sınavlar sırasında çok başarılı olamadığım düşüncesi sıklıkla aklıma gelir.	①	②	③	④
16. Sınavlar sırasında o kadar gergin olurum ki gerçekten iyi bildiklerimi bile unuturum.	①	②	③	④
20. Sınavlardan sonra, aslında yaptığımdan daha iyisini yapabilirdim hissi yaşarım.	①	②	③	④

SAMPLE ITEMS FROM ACCEPTANCE AND ACTION QUESTIONNAIRE-II

Kabul ve Eylem Ölçeği-II

Aşağıda birtakım ifadeler göreceksiniz. Lütfen her bir ifadenin sizin için ne kadar doğru olduğunu aynı satırda bulunan sayıları yuvarlak içine alarak değerlendiriniz. Seçiminizi aşağıdaki ölçeği kullanarak yapınız.

1	2	3	4	5	6	7
Hiçbir zaman doğru değil	Çok nadiren doğru	Nadiren doğru	Bazen doğru	Sıklıkla doğru	Neredeyse her zaman doğru	Her zaman doğru

1. Acı verici deneyimlerim ve anılarım anlamlı bir hayat yaşamamı zorlaştırıyor.	①	②	③	④	⑤	⑥	⑦
3.Kaygılarımı ve duygularımı kontrol edememekten endişe duyarım.	①	②	③	④	⑤	⑥	⑦
6. Çoğu insan hayatını benden daha iyi idare ediyor gibi görünüyor.	①	②	③	④	⑤	⑥	⑦

SAMPLE ITEMS FROM RUMINATIVE RESPONSE SCALE

Ruminasyon Ölçeği

İnsanlar kötü bir deneyim yaşadıklarında bir sürü farklı şey yapar ya da düşünürler. Lütfen aşağıdaki cümleleri okuyup, son iki hafta içinde, belirtilenleri ne kadar sıklıkta yaptığınızı işaretleyin. Lütfen, ne yapmanız gerektiğini değil, gerçekte ne yaptığınızı belirtin.

1 = Hiçbir Zaman, 2 = Bazen, 3 = Çoğunlukla, 4 = Her Zaman

1. ___ ”Bunu hak etmek için ne yaptım” diye ne kadar sık düşünüyorsun?

4. ___ Bir köşeye çekilip "neden bu şekilde hissediyorum" diye ne kadar sık düşünüyorsun?

6. ___ Son zamanlarda yaşadığın bir olay hakkında "keşke daha iyi sonuçlansaydı" diye ne kadar sık düşünüyorsun?

7. ___ "Niye benim problemlerim var da, diğer insanların yok" diye ne kadar sık düşünüyorsun?

8. ___ ”Neden olayları daha iyi idare edemiyorum" diye ne kadar sık düşünüyorsun?

SAMPLE ITEMS FROM STATE SELF-FORGIVENESS SCALE

Durumsal Kendini Affetme Ölçeği

Lütfen aşağıdaki ifadelerin her birinde şu andaki kusurunuzla ilgili nasıl hissettiğinizi sizi en doğru yansıtan ifadeyi seçerek belirtiniz.

| 1 | 2 | 3 | 4 |

Beni Hiç Yansıtmıyor   Beni Tamamen Yansıtıyor

1. Yaptığımın yanlış olduğunu düşündüğümde, kendime karşı merhametliyimdir.	①	②	③	④
3. Yaptığımın yanlış olduğunu düşündüğümde, kendimi kabul ettiğimi hissederim.	①	②	③	④
6. Yaptığımın yanlış olduğunu düşündüğümde, kendime şefkat gösteririm.	①	②	③	④
8. Yaptığımın yanlış olduğunu düşündüğümde, kendimi aşağılarım.	①	②	③	④
10. Yaptığımın yanlış olduğunu düşündüğümde, iyi birisi olduğuma inanırım.	①	②	③	④
12. Yaptığımın yanlış olduğunu düşündüğümde, çok kötü birisi olduğuma inanırım.	①	②	③	④
15. Yaptığımın yanlış olduğunu düşündüğümde, sevilmeye değer birisi olduğuma inanırım.	①	②	③	④
16. Yaptığımın yanlış olduğunu düşündüğümde, kötü bir insan olduğuma inanırım.	①	②	③	④

APPENDIX N

SAMPLE ITEMS FROM PERFECTIONISM COGNITIONS INVENTORY

Mükemmeliyetçi Düşünceler Ölçeği

Aşağıda mükemmeliyetçilikle ilgili insanların aklına bazen gelebilecek cümleler sıralanmıştır. Lütfen her düşünceyi okuyup bu düşüncenin geçen hafta boyunca aklınıza ne sıklıkta geldiğini belirtiniz. **Lütfen her maddeyi dikkatlice okuyunuz ve aşağıdaki derecelendirmeyi kullanarak uygun rakamı işaretleyiniz.**

	Asla	Bazen	Orta Sıklıkta	Sık Sık	Her Zaman
1. Neden mükemmel olamıyorum?	①	②	③	④	⑤
4. Asla aynı hatayı iki kere yapmamalıyım.	①	②	③	④	⑤
6. En iyi olmak zorundayım.	①	②	③	④	⑤
8. Hata yapmaya tahammül edemiyorum.	①	②	③	④	⑤
10. Ne kadar yaparsam yapayım, hiçbir zaman yeterli olmuyor.	①	②	③	④	⑤
11. İnsanlar benden mükemmel olmamı bekliyor.	①	②	③	④	⑤
14. Her şey neredeyse mükemmel olsa bile, her zaman daha iyisini yapabilirim.	①	②	③	④	⑤
18. Hayatımdaki her şey mükemmel olsa harika olur.	①	②	③	④	⑤
19. Yaptığım iş kusursuz olmalı.	①	②	③	④	⑤

APPENDIX O

SAMPLE ITEMS FROM DREXEL DEFUSION SCALE

Drexel Ayrışma Ölçeği

"**Ayrışma**" kelimesi, olaylara ya da durumlara, **düşünceler ve duygulardan uzaklaşarak bakabilmeyi** ifade eder.

Bu "ayrışma" tanımını dikkate alarak, lütfen aşağıda verilen her bir senaryoda genellikle ne ölçüde "ayrışma" durumu yaşadığınızı ilgili kutucuğu işaretleyerek belirtiniz. Soruları cevaplamaya başlamadan önce bütün örnekleri okumak isteyebilirsiniz. (Önemli Bilgi: Sizden belli duygu ve düşünceleri ne ölçüde düşünüp hissettiğiniz değil, eğer yapabiliyorsanız ne ölçüde ayrışabildiğinizi belirtmeniz istenmektedir.)

	Hiç	Biraz	Bir Dereceye Kadar	Orta Seviyede	Oldukça Fazla	Çok Fazla
1. Öfke duygusu. Uzun bir kuyruktayken birisi önünüze geçtiğinde sinirlenirsiniz. Genellikle bu öfke duygusundan ne ölçüde ayrışabilirsiniz (uzaklaşabilirsiniz)?	⓪	①	②	③	④	⑤
4. Kaygılı düşünceler. Okulda ya da iş yerinde işler yolunda gitmiyor ve üst üste yığılıyorlar. Genellikle "Bunları asla bitiremeyeceğim." gibi kaygılı düşüncelerden ne ölçüde ayrışabilirsiniz (uzaklaşabilirsiniz)?	⓪	①	②	③	④	⑤

	Hiç	Biraz	Bir Dereceye Kadar	Orta Seviyede	Oldukça Fazla	Çok Fazla
5. Kendinizle ilgili düşünceler. "Beni kimse sevmiyor." gibi bir düşünceye sahip olduğunuzu hayal edin. Genellikle kendiniz hakkındaki bu olumsuz düşüncelerden ne ölçüde ayrışabilirsiniz (uzaklaşabilirsiniz)?	⓪	①	②	③	④	⑤
6. Umutsuzluk düşünceleri. Kendinizi üzgün hissediyorsunuz ve görünürde sonu belli olmayan zor bir durumda sıkışıp kalmışsınız. "Bir şeyler asla daha iyi olmayacak." gibi düşünceleriniz var. Genellikle bu umutsuzluk düşüncelerinden ne ölçüde ayrışabilirsiniz (uzaklaşabilirsiniz)?	⓪	①	②	③	④	⑤
7. Motivasyon veya yetenek ile ilgili düşünceler. "Ben bunu yapamam." ya da "Bir türlü başlayamıyorum." gibi düşünceleriniz olduğunu hayal edin. Genellikle motivasyon ya da yetenekle ilgili bu düşüncelerden ne ölçüde ayrışabilirsiniz (uzaklaşabilirsiniz)?	⓪	①	②	③	④	⑤

CURRICULUM VITAE

PERSONAL INFORMATION

Name Surname: Gökçen AYDIN

Nationality: Turkish (TC)

Time/Place of Birth: 21 October 1987 / Trabzon

Adress: Orta Doğu Teknik Üniversitesi, Öğrenme ve Öğretmeyi Geliştirme Merkezi, Merkez Mühendislik Binası, 4. Kat, No: 413, 06800, Çankaya, Ankara/Türkiye

Marital Status: Single

E-mail: gokcenaydn@gmail.com

EDUCATION

Degree	Institution	Year
PhD	Middle East Technical University, Psychological Counseling and Guidance	2017
MS	Middle East Technical University, Psychological Counseling and Guidance	2012
BA	Middle East Technical University, Foreign Language Education	2009
High School	Hasan Ali Yücel Anatolian Teacher Training High School	2005

WORK EXPERIENCE

2010 - Present: Research Assistant - Middle East Technical University– Center for Advancing Learning and Teaching

2009 - 2010: Instructor - Ankara University TÖMER

PUBLICATIONS

Publications in Peer-Reviewed Journals and Proceedings

Aydın, G. (2017). Personal factors predicting college student success. *Eurasian Journal of Educational Research, 69*, 93-112. doi: 10.14689/ejer.2017.69.6.

Aydın, G., Çiçek, M., & Güleç, M. (2017, June). Effects of multimedia feedback on pre-service teachers' perceptions, self-assessment, and academic achievement. In Airina V. & András S. (Ed.) *Diversity Matters! EDEN (European Distance and E-Learning Network)*, 381-389. Budapest, Hungary. ISBN 978-615-5511-18-9.

Aydın, Y. & **Aydın, G.** (2017). Değer Verme Ölçeği (DVÖ)'ni Türk kültürüne uyarlama çalışması. [Adaptation of Valuing Questionnaire (VQ) into Turkish culture]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 17*(1), 64-77.

Aydın, G., Kandemir-Özdinç, N., & Aksu, M. (2015). The relationship between cognitive distortions and forgiveness in romantic relationships. *International Journal of Human Sciences, 12*(1), 1338-1349. doi: 10.14687/ijhs.v12:1.3206.

Aydın, G. & Yerin-Güneri, O. (2014, May). Qualitative and quantitative evaluation of an English language peer tutoring program for low achieving students. In Freda, M.F. (Ed.) *Reflexivity in Higher Education: Research and Models of Intervention for Underachieving Students,* 27-34. Aracne editrice, Roma, Italy. doi: 10.4399/97888548701472. ISSN-978-88-548-7014-7.

Aydın, G. & Yerin-Güneri, O. (2014, May). The role of English proficiency level, personal and affective factors predicting language preparatory school students' academic success. In Freda, M.F. (Ed.) *Reflexivity in Higher Education: Research and Models of Intervention for Underachieving Students,* 17-25. Aracne editrice, Roma, Italy. doi: 10.4399/97888548701472. ISSN-978-88-548-7014-7.

Presentations at National and International Conferences

Aydın, G. & Yerin-Güneri, O. (2017, May). *Testing factor structure and reliability of Turkish version of State Self-Forgiveness Scale (SSFS)*. EJER 4th International Eurasian Educational Research Congress, p. 1467-1468. Denizli, Turkey.

Gül, A., **Aydın, G.**, Çağ, P., & Tokel, T. (2017, May). *Implications of 3D virtual worlds for counseling services in higher education.* EJER 4th International Eurasian Educational Research Congress, p. 1905-1906. Denizli, Turkey.

Yerin-Güneri, O. & **Aydın, G.** (2016, May). *Turkish adaptation of Perfectionism Cognitions Inventory (PCI)*. Paper presented at EJER (3rd International Eurasian Educational Research Congress)*,* p. 1809-1810*.* Muğla, Turkey.

Aydın, G. (2015, September). *The role of power and gender in romantic relationship satisfaction among college students*. Paper presented at ECER (The European Conference on Educational Research), Budapest, Hungary.

Yerin-Güneri, O., Sümer, H.C., Çağ, P., Barutçu-Yıldırım, F., **Aydın, G.**, & Çapa-Aydın, Y. (2015, September). *Alumni and student opinions regarding areas of improvement in undergraduate education and competences of the graduates.* Paper presented at ECER (The European Conference on Educational Research), Budapest, Hungary.

Aydın, G. & Çağ, P. (2015, October). *İlişkilerde Güç Algısı Ölçeği'nin Türkçe'ye uyarlanması: Geçerlik ve güvenirlik çalışması.* [*Adaptation of Sense of Power Scale into Turkish: Reliability and validity study*]. Paper presented at XIII. National Congress of Psychological Counseling and Guidance, p.138-140, Mersin, Turkey.

Owen, D., Yerin-Güneri, O., Korkut-Owen, F., Sun-Selışık, E., Çağ, P., & **Aydın, G.** (2015, October). *Psikolojik danışma tekniklerinin öğretilmesinde video modellemenin kullanılması: Bir pilot uygulama.* [*Using video modeling in teaching psychological counseling techniques: A pilot study*]. Paper presented at XIII. National Congress of Psychological Counseling and Guidance, p. 316-319, Mersin, Turkey.

Yerin-Güneri, O., Ünlü-Kaynakçı, F. Z., & **Aydın, G.** (2015, October). *Skovholt Profesyonel Sağlamlık ve Öz Bakım Ölçeğini Türkçe'ye uyarlama çalışması.* [*Turkish adaptation of Skovholt Practitioner Professional Resiliency and Self-Care Inventory*]. Paper presented at XIII. National Congress of Psychological Counseling and Guidance, p. 289-291, Mersin, Turkey.

Aydın, G. (2015, May). *Learning needs of preparatory students.* Paper presented at

12th ODTÜ International ELT Convention, p. 36. Ankara, Turkey.

Çağ, P., **Aydın, G.**, Barutçu-Yıldırım, F., Yerin Güneri, O., & Çapa Aydın, Y. (2015, April). *Üniversite öğrencilerinin başarı ve başarısızlıklarını etkileyen faktörlere nitel bir bakış.* [A *qualitative view of university students' success and failure*]. VIII. Üniversiteler Psikolojik Danışma ve Rehberlik Sempozyumu. Eskisehir, Turkey.

Aydın, G., Kandemir-Özdinç, N., & Aksu, M. (2014, September). *The relationship between cognitive distortions and forgiveness in romantic relationships.* Paper presented at ECER (The European Conference on Educational Research), Porto, Portugal.

Mesutoğlu, C., Akçabozan, N.B., Muyan, M., **Aydın, G.**, Ünlü Kaynakçı, F.Z., & Sancak Aydın, G. (2014, April). *Değişen kıyafet uygulamasına yönelik öğretmen, öğrenci ve veli görüşleri.* [*Teacher, student and parent's opinions regarding the change in application of clothing in schools*]. Paper presented at the 1st Eurasian Educational Research Congress, Istanbul, Turkey.

Aydın, G. & Yerin-Güneri, O. (2014, March). *Qualitative and quantitative evaluation of an English language peer tutoring program for low achieving students.* Paper presented at INSTALL International Conference, Naples, Italy.

Aydın, G. & Yerin-Güneri, O. (2014, March). *The role of English proficiency level, personal and affective factors predicting language preparatory school students' academic success.* Poster presented at INSTALL International Conference, Naples, Italy.

Çağ, P., Barutçu-Yıldırım, F., **Aydın, G.**, & Erkan-Atik, Z. (2013, September). *Investigating the role of facebook usage, life satisfaction, self-esteem and social support in predicting the loneliness of Turkish university students.* Paper presented at Boğaziçi University, International Association of Counselling (IAC) World Conference 2013- XII. National Congress of Psychological Counseling and Guidance, p. 205-206. Istanbul, Turkey.

Aydın, G. & Yerin-Güneri, O. (2012, May). *"Let's learn together": Academic support program.* Paper presented at 11th ODTÜ International ELT Convention, p. 54. Ankara, Turkey.

Mesutoğlu, C., **Aydın, G.**, & Yerin-Güneri, O. (2011, October). *Eğitim fakültesi öğrencilerinde problemli internet kullanımını yordamada cinsiyet, yaş, sosyal beceri ve utangaçlığın rolü.* [*The role of gender, age, social skills and shyness in predicting problematic internet usage of college students*]. Paper presented at XI. National Congress of Psychological Counseling and Guidance, Izmir, Turkey.

Master's Thesis:

Aydın, G. (2012). *The role of English proficiency level, personal and affective factors predicting language preparatory school students' academic success. (Unpublished Master's Thesis).* Middle East Technical University, Ankara, Turkey.

Translation of Book Chapter

McGraw, H. (2015). *Psychsmart* (*Aklımın Aklı: Psikoloji*). Durak, M., Şenol-Durak, E. & Kocatepe, U. (Ed.). Düşünme, dil ve zeka (Chapter 7, 162-191) (**Gökçen Aydın**, Translator). Ankara: NOBEL Akademik Yayıncılık. ISBN: 978-605-320-278-3.

FOREIGN LANGUAGES

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German / Pre-Intermediate

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2017- BAP (Researcher): Kabul ve Kararlılık Terapisi Bakış Açısıyla Sınav Kaygısıyla Başetme Grubu [Group Counseling for Dealing with Test Anxiety within Acceptance and Commitment Therapy] / Abant İzzet Baysal University

2016- BAP (Researcher): Araştırma Görevlilerine Yönelik Etkili Öğretim Programı Geliştirilmesi [*Developing Effective Teaching Program for Research Assistants*] / Middle East Technical University

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Table tennis, squash, theatre, reading, trekking, watching movies

TURKISH SUMMARY / TÜRKÇE ÖZET

1.GİRİŞ

Modern dünyada, yüksek standartlarda yaşam için iyi bir eğitim almak önemlidir. Ancak eğitim sistemindeki kaçınılmaz yarış, sürecin sonunda bir performans ölçümü ya da değerlendirme ile sonuçlanmaktadır (Brooks ve ark., 2015; McDonald, 2001). Öğrencilerin başarılarını tanımlamak ve ölçmek için eğitimin her kademesinde pek çok testin ve sınavın uygulanması söz konusudur (Rana ve Mahmood, 2010). Bununla birlikte, artan sınavlar ve eğitim ortamındaki baskı, öğrencilerde sınav kaygısı olarak adlandırılan duyguları da beraberinde getirebilir (Sarason ve ark., 1960). Diğer bir deyişle, sınavlara yüklenen önem, sınav kaygısına yol açabilmektedir (Aydın ve Yerin, 1994). McDonald'a (2001) göre, sınav kaygısı akademik hayatın genel bir problemidir ve alandan bağımsız olarak eğitimin her kademesinde karşılaşılan bir sorun olarak karşımıza çıkmaktadır (Gibson, 2014).

Daha geniş bir açıdan bakıldığında sınav kaygısı, bir sınavdan kalma ya da başkaları tarafından değerlendirilme korkusu sonucunda hissedilen stres ya da rahatsızlıktır. Zeidner (1998, s. 17) sınav kaygısını "bir sınav ya da benzeri bir değerlendirme sonucunda başarısız olmaya ya da olası olumsuz sonuçlarla ilgili endişe duymaya bağlı olarak ortaya çıkan fenomonolojik, fizyolojik ve davranışsal tepkiler" olarak tanımlamaktadır. Sınav kaygısı; sınav öncesi, sınav sırası ya da sınav sonrasında hissedilebilir. Hembree (1988) yaptığı bir çalışmada üniversite öğrencilerinin % 20'sinin sınav kaygısı yaşadığını, Cassady (2010) ise sınav kaygısının yaygınlık oranının % 40'lar civarında olduğunu söylemektedir.

Sınav kaygısının duyuşsal ve kuruntu olmak üzere iki boyutu vardır. Rana ve Mahmood (2010) sınav kaygısında endişe boyutunun duygusal boyuttan daha baskın olduğunu söylemektedir. Sınav kaygısının yalnızca endişe boyutu ele alındığında "bilişsel sınav kaygısı" kavramını ön plana çıkarmaktadır (Cassady, 2010; Cassady ve Johnson, 2002). Bilişsel sınav kaygısı, sınavlarda olumsuz etki yapan düşünceler ya da inanışlar olarak tanımlanmaktadır (Cassady ve Finch, 2015). Bireylerin sınavlarla ilgili sahip olduğu bu olumsuz düşünceler performanslarını etkilemektedir. Bu nedenle sınav kaygısı araştırmalarında bireylerin bilişsel düzeylerini araştırmak önemlidir.

Öğrenciler üniversite eğitimlerine başlayana kadar pek çok sınava tabii tutulmaktadır. Ancak bu sınavların en önemlisi kuşkusuz ki üniversiteye giriş sınavıdır. Üniversite yılları kişilerin hayatında önemli bir yere sahip olduğundan, bireylerin o dönemde yalnızca akademik değil, psikolojik ve bilişsel açılardan doyum sağlaması önemlidir. Ancak sınav kaygısının eğitim sistemindeki yaygınlığı, bireylerin günlük hayatında duygusal, bilişsel ve psikolojik ihtiyaçlarına cevap vermesini zorlaştırmaktadır. Bu nedenle, özellikle üniversite eğitiminde, bireylerin sınav kaygısının geleceklerini etkilemesine izin verilmemelidir.

Alan yazındaki çalışmalar, bilişsel bir süreç içeren ruminasyon, mükemmeliyetçi düşünceler, kendini affetme, bilişsel ayrışma gibi değişkenlerin sınav kaygısı üzerinde etkili olabileceğini göstermektedir. Ruminasyon, geçmişte yaşanmış olumsuz deneyimler üzerine sürekli düşünmeyi içerdiğinden (Grant ve Beck, 2010), kişinin anda olmasının önüne geçmekte (Hayes ve Smith, 2005) ve böylece kişinin psikolojik esnekliğini olumsuz etkilemektedir (Bond ve ark., 2011). Araştırmalar, geçmişteki olumsuz deneyimleri çok fazla düşünmenin yaşanılan sınav kaygısını artırdığını göstermektedir (Brown ve ark., 2011). Benzer şekilde, mükemmeliyetçi düşünceler yüksek standartlar koymayı ve bunlara ulaşmak için çaba göstermeyi içerdiğinden (Flett ve ark., 1998), kişilerin değerlerini tanımlaması ve onlara uygun kararlı adım atmasının önüne geçmektedir. Bu da hissedilen sınav kaygısını

artırmaktadır (Eum ve Rice, 2011). Weiner ve Carton'a (2012) göre; diğer kişilerin değerlendirmelerine odaklı mükemmeliyetçi düşüncelere sahip üniversite öğrencileri yüksek sınav kaygısı yaşamaktadır. Bilişsel bir süreç olan ruminasyon ve mükemmeliyetçi düşüncelerin, aynı şekilde yoğun bilişsel süreç içeren bilişsel sınav kaygısını yordamadaki gücü kapsamlı bir biçimde araştırılmamıştır.

Bilişsel sınav kaygısını yordayabilecek diğer bir değişken de bilişsel ayrışmadır. Psikolojik esnekliği artıran bir kavram olarak karşımıza çıkan bilişsel ayrışma, kişinin düşünceleri ile kendisi arasına mesafe koyma ve düşüncelerini yalnızca akıldan geçen düşünceler olarak nitelendirme şeklinde tanımlanmaktadır (Hayes ve Lillis, 2012). Kişi aklından geçen bu düşünceleri kendisiyle ilgili doğrular olarak algıladığında bilişsel ayrışmayı yapamamaktadır. Sınav kaygısı yaşayan öğrencilerin bu kaygılı düşüncelere kendilerini kaptırarak psikolojik esneklikten uzaklaştıkları düşünülmektedir. Halbuki sınavlara yönelik yaşadıkları kaygılı düşünceler ile kendileri arasına mesafe koymaları, bu düşünceler içine sıkışmalarını önleyecek ve değerleri doğrultusunda atacakları adımları kolaylaştıracaktır (Brown ve ark., 2011). Bu nedenle bilişsel ayrışmanın sınav kaygısını yordamadaki rolünün araştırılması önem kazanmaktadır. Sınav kaygısını yordayabileceği düşünülen diğer bir bilişsel değişken de kendini affetmedir. Kendini affetme, olayları unutma ya da bastırma yerine, onları başka bir açıdan değerlendirerek benliği rahatlatmayı içermektedir (Enright, 1996). Kaygı ile kendini affetme arasında anlamlı bir ilişki bulunmuştur çünkü kendini affedebilen kişilerin daha az kaygı yaşadıkları görülmüştür (Berry ve ark., 2001; Thompson ve ark., 2005). Bu bağlamda kendini affetmenin sınav kaygısı ile de ilişkili olabileceği düşünülmektedir ancak kendini affetme ile sınav kaygısı ya da bilişsel sınav kaygısı arasında ilişki olup olmadığı henüz araştırılmamıştır. Bu nokta göz önüne alındığında, sınav kaygısı yaşayan öğrencilerin kendilerini kaygılı hissedip başarısızlık yaşamalarının ardından kendilerini affedip yeni bir sınav sürecine hazırlanmalarının araştırılması önemli görülmektedir.

Psikolojideki kuramlar ve farklı modeller, çeşitli bakış açıları yoluyla kişilerin iyi bir yaşam sürmeleri için yaşadıkları problemlere çözümler sunmaktadır. Bilişsel-davranışçı yaklaşımın bakış açısını genişleten, üçüncü dalga olarak görülen ve

oldukça yeni bir teori olan "Kabul ve Kararlılık Teorisi (KKT)", problemin çözümüne odaklanmak yerine psikolojik esnekliği sağlayarak kişinin istekli bir biçimde durumu kabul etmesine dayanır. Bu teoride süreç, bireylerin davranışlarını benliklerinden ayırmalarına, olaylara bağlı olarak kişiliklerini yargılamamalarına dayanır (Hayes ve Lillis, 2012). Kabul ve Kararlılık terapisinin en önemli vurgusu psikolojik esnekliğin artırılmasıdır. Bireyler psikolojik esnekliği, kabul ederek, şimdiki zamanda kalarak, değerlerini tanımlayarak, kendini gözlemleyerek, bilişsel ayrışma yaparak ve kararlı adım atarak sağlarlar. KKT; değerlerin belirlenmesi, bu değerler doğrultusunda kararlı adım atılması, deneyimlenen duyguların istekli bir biçimde, bu değerlere ulaşma yolunda bir adım olarak görülmesine dayanmaktadır.

"Kabul ve Kararlılık Terapisi"nin getirmiş olduğu yeni yaklaşım ve uygulamalar, terapinin pek çok problem alanında kullanılmasını sağlamıştır. KKT'nin özellikle klinik problemlerde ve kaygı çalışmalarında kullanılması yaygındır (Bluett ve ark., 2014; Sabourin, 2013; Sharp, 2012; Swain ve ark., 2013). Brown ve ark. (2011) KKT uygulamalarının sınav kaygısı alan yazınında kullanıldığı çalışmaların az olduğunu vurgulamaktadır ve bu uygulamaların sınav kaygısıyla baş etmede etkili olabileceği düşüncesiyle sınav kaygısının KKT bakış açısıyla araştırılmasını önermektedir. Sınav kaygısının KKT kapsamında ele alınması; sınav kaygısını azaltmaya ya da ortadan kaldırmaya çalışmak yerine, duyguyu deneyimlemeyi, kaygıyı kabul ederek, kendini gözlemleyerek ve kişinin değerleri doğrultusunda atacağı kararlı adımlarda kaygının davranışlarından ayrıştığı bir zeminde olduğunun farkına varılması yolu ile psikolojik esnekliği artırmayı içerir. İyi bir geleceğe sahip olmak için üniversite hayatı boyunca başarılı olmanın kendi değerleri arasında olduğunu fark eden bir birey, psikolojik esnekliği sağlayabildiğinde sınav kaygısını bu değere ulaşmada yaşanılabilecek durumlardan biri olarak görmeyi başarır. Sınav kaygısının KKT kapsamında araştırıldığı çalışmalara nadiren rastlanmaktadır. Bu nedenle, sınav kaygısını yordayabileceği düşünülen değişkenlerin bilişsel sınav kaygısını yormadaki rolünün psikolojik esneklik yoluyla araştırması önemli görülmektedir. Tüm bu bilgiler ışığında, bu çalışmada ruminasyon, kendini affetme, mükemmeliyetçi düşünceler ve bilişsel ayrışma gibi bilişsel değişkenlerin KKT

kapsamında bilişsel sınav kaygısını ne ölçüde yordadığı araştırılmıştır. Alan yazında yapılan çalışmalar, psikolojik esnekliğin çeşitli değişkenler arasında aracı rol üstlendiğine vurgu yapmakta (Hayes ve Lillis, 2012) ve bilişsel sınav kaygısının KKT kapsamında yeterince çalışılmadığını göstermektedir.

1.1. Çalışmanın Amacı

Bu çalışmanın temel amacı, psikolojik esnekliğin dolaylı etkisi yoluyla, ruminasyon, kendini affetme, mükemmeliyetçi düşünceler ve bilişsel ayrışmanın bilişsel sınav kaygısını ne ölçüde yordadığını araştırmaktır. Bu amaçla ilgili bilişsel değişkenlerin kuramsal olarak "Kabul ve Kararlılık Terapisi"nin temel dayanağı olan psikolojik esneklik yoluyla test edildiği bir model tasarlanmıştır.

1.2. Çalışmanın Önemi

Türkiye'de üniversite mezunu olmak oldukça önemlidir (Aydin ve Yerin, 1994). Ancak, üniversite sınavında başarılı olmak ve bir yükseköğretim programına yerleşmek tüm öğrenciler için oldukça zorlayıcı bir süreçtir. Kavakci ve ark. (2014) ve Yıldırım (2007) çalışmalarında, Türkiye'de üniversite sınavına hazırlanan öğrencilerin neredeyse yarısının sınav kaygısı yaşadığını tespit etmiştir. Türkiye'de ilk ve ortaöğretim düzeyindeki öğrencilerde sınav kaygısını inceleyen birçok çalışma yapılmıştır. Ancak, öğrencilerin yüksek sınav kaygısı deneyimledikleri bir sınav döneminin ardından, üniversite eğitimlerine başladıklarında yaşadıkları kaygının düzeyi ve bunun eğitim hayatlarını nasıl etkilediği ihmal edilen araştırma konulardan birisi olarak ortaya çıkmaktadır. (Denizli, 2004).

Bu bağlamda, bu çalışmada üniversiteyi yeni kazanan ve İngilizce hazırlık okulunda öğrenim gören öğrencilerle çalışılması amaçlanmıştır. Çünkü bu öğrenciler bir akademik yılın sonunda "İngilizce Yeterlik Sınavı"na girecek ve başarılı olduklarında üniversite eğitimlerine başlayabileceklerdir. Sınav kaygısı pek çok kültürde sıklıkla çalışılan konulardan birisiyken, sınav kaygısının bir alt boyutunu içeren, yalnızca bilişsel sürece vurgu yapan bilişsel sınav kaygısı kavramı alan yazında henüz yeterince çalışılmamıştır (Berger, 2012). Üstelik sınav kaygısı

kavramı, oldukça yeni bir kuramsal temel olan Kabul ve Kararlılık Terapisi bakış açısıyla son zamanlarda ele alınmaktadır (Brown ve ark., 2011). KKT'nin gelişmekte olan bir kuramsal temel olduğu bilgisinden yola çıkarak çeşitli psikolojik sorunların bu teorinin getirdiği yeni bakış açısı ve uygulamaları aracılığıyla ele alınması alan yazına katkıda bulunacaktır. Kaygı KKT kapsamında oldukça geniş bir çalışma ağına sahiptir. Bu bilgiden yola çıkılarak, sınav kaygısı kavramının da bu kuram çerçevesinde ele alınması gelecek çalışmalar için ümit verici olmaktadır.

Bu çalışma KKT'nin çeşitli kültürlerde ele alınması gerektiğini belirten önerilerden yola çıkılarak tasarlanmıştır (Hayes ve Lillis, 2012). Alan yazınında KKT'nin deneysel olarak test edildiği çalışmalara rastlamak mümkün olmakla birlikte Türkiye'de KKT'nin deneysel olarak araştırıldığı çalışma yoktur. Bu noktadan hareketle, ilk aşama olarak çeşitli ilişkisel araştırmaların yapılması ve böylece gelecekteki deneysel çalışmaların önünün açılması için bu çalışma önemlidir. Psikolojik esnekliğin dolaylı etkisinin araştırıldığı çalışmalar Türkiye'de sınırlıdır ve bilişsel sınav kaygısı da yine benzer biçimde Türkiye'de yeni yeni çalışılmaktadır (Bozkurt ve ark., 2017). Ancak psikolojik esnekliğin dolaylı etkisi aracılığıyla bilişsel sınav kaygısını yordayan değişkenler üzerine bir çalışmaya henüz rastlanmamıştır. Çalışmanın bulguları ışığında üniversitelerin psikolojik danışma ünitelerinde çalışan psikolojik danışmanlara, üniversiteyi yeni kazanan öğrencilerin üniversitenin ilk yıllarında yaşayabileceği sınav kaygısını yordayan değişkenlerin belirlenmesi açısından ışık tutabilir, yapacakları tedavi edici ve önleyici çalışmalar artırılabilir. Aynı şekilde, çalışmanın bulguları, hazırlık okulu yönetimine ve okutmanlarına öğrencilerini yönlendirmeleri konusunda yol gösterici olabilir. Son olarak, bu çalışma ile Mükemmeliyetçi Düşünceler Ölçeği, Durumsal Kendini Affetme Ölçeği ve Bilişsel Ayrışma Ölçeği ilgili alan yazına kazandırılmıştır. Böylece gelecekte söz konusu değişkenlerin araştırıldığı çalışmaların artacağı düşünülmektedir.

2.YÖNTEM

Bu bölümde araştırma deseni, örneklem, ölçme araçları, veri toplama süreci ve veri analizi süreçleri hakkında bilgi verilmiştir.

2.1 Araştırmanın Deseni

Bu araştırmada, psikolojik esnekliğin dolaylı etkisi yoluyla, ruminasyon, kendini affetme, mükemmeliyetçi düşünceler ve bilişsel ayrışmanın bilişsel sınav kaygısını ne ölçüde yordadığı araştırılmıştır. İlgili değişkenler arasındaki ilişkiyi bu değişkenleri etkilemeden incelemeyi amaçlaması açısından bu çalışmada ilişkisel bir araştırma deseni kullanılmıştır. İlişkisel araştırma deseni çok sayıdaki değişkenin arasındaki ilişkilerin bulunması ve bunların yönünün belirlenmesine olanak sağlar (Jackson, 2011). Bu çalışmada, ilişkisel araştırma deseninde daha karmaşık ilişkilerin belirlenmesine olanak sağlayan Yapısal Eşitlik Modellemesi kullanılmıştır.

2.2 Örneklem

Bu çalışmanın evrenini üniversitelerin hazırlık okulunda okuyan öğrenciler oluşturmaktadır. Araştırmanın ulaşılabilir örneklemini ise Türkiye'de bir devlet üniversitesinin Yabancı Diller Yüksekokulu Temel İngilizce Bölümü'nde öğrenim gören 715 üniversite öğrencisi oluşturmaktadır. Temel İngilizce Bölümünde başlangıç düzeyi, temel düzey, orta düzey ve orta-üstü düzeyde öğrenim gören toplam 2644 öğrenci bulunmaktadır. Bu öğrencilerin kurlara göre dağılımları; 635'i başlangıç, 1138'i temel, 539'u orta ve 332'si orta-üstü düzey şeklindedir. Çalışmada tabakalı rastgele örnekleme yöntemi kullanılarak her kuru aynı oranda temsil edecek şekilde toplam 1000 öğrenci seçilmiştir. Bu bağlamda, uygulanacak ölçekler başlangıç düzeyinde 240 öğrenciye, temel düzeyde 430 öğrenciye, orta düzeyde 200 öğrenciye ve orta üstü düzeyde 130 öğrenciye uygulanmıştır. Çalışmaya gönüllü olarak katılan 715 öğrenci ölçme araçlarını eksiksiz doldurmuştur.

Katılımcıların 351'i (% 49,1) kadın, 364'ü (% 50,9) erkektir. Kurlara göre dağılımlarına bakıldığında 150'si (% 21) başlangıç, 343'ü (% 48) temel, 175'i (% 24,5) orta ve 47'si (% 6,6) orta-üstü düzeydir. Ayrıca katılımcıların yaş aralığı 17 ila

27 arasında değişmektedir ve yaş ortalaması 18,57 olarak bulunmuştur. Katılımcıların fakültelere göre dağılımı şu şekildedir: mühendislik fakültesi 327 (% 45,7), fen edebiyat fakültesi 162 (% 22,7), iktisadi ve idari bilimler fakültesi 101 (% 14,1), eğitim fakültesi 78 (% 10,9) ve mimarlık fakültesi 47 (% 6,6).

2.3 Ölçme Araçları

Bu çalışmada; Kişisel Bilgi Formu, Bilişsel Sınav Kaygısı Ölçeği (CTAR; Cassady ve Finch, 2015), Durumsal Kendini Affetme Ölçeği (SSFS; Wohl ve ark., 2008), Mükemmeliyetçi Düşünceler Ölçeği (PCI; Flett ve ark., 1998), Drexel Ayrışma Ölçeği (DDS; Forman ve ark., 2012), Ruminasyon Ölçeği (RRS; Treynor ve ark., 2003), Kabul ve Eylem Ölçeği-II (AAQ-II; Bond ve ark., 2011) ölçme aracı olarak kullanılmıştır. Çalışmada ayrıca daha önce Türkçeye uyarlaması yapılmayan Durumsal Kendini Affetme Ölçeği, Mükemmeliyetçi Düşünceler Ölçeği ve Drexel Ayrışma Ölçeği'nin Türkçeye uyarlaması bir pilot çalışma ile ayrı bir örneklem üzerinde yapılmış ve geçerlik-güvenirlik hesaplamaları yapılmıştır.

2.3.1 Kişisel Bilgi Formu

Kişisel Bilgi formunda katılımcıların cinsiyetini, yaşını, bulundukları dil seviyesini ve fakültelerini belirlemeye yönelik sorular bulunmaktadır.

2.3.2 Bilişsel Sınav Kaygısı Ölçeği

Bilişsel Sınav Kaygısı Ölçeği (CTAS) (Cassady ve Johnson, 2002) sınav kaygısının yalnızca bilişsel boyutunu ölçmek amacıyla geliştirilmiştir. Ölçek ayrıca sınava hazırlık süreciyle ilgili ifadeleri de içermektedir. Ölçek bilişsel sınav kaygısını belirlemeye yönelik 4'lü dereceleme üzerinde (1: Bana hiç uygun değil; 4: Bana çok uygun) 27 madde ve tek boyuttan oluşmaktadır. Ölçekten alınan toplam puan 27 ila 108 arasında değişmektedir ve yüksek puanlar bilişsel sınav kaygısının fazla yaşandığına işaret etmektedir. Cassady ve Johnson (2002) bu ölçekten alınan 27-61 puan aralığını düşük bilişsel sınav kaygısı, 62-71 aralığını orta düzey bilişsel sınav kaygısı ve 72-108 puan aralığını ise yüksek düzeyde bilişsel sınav kaygısı olarak belirlemiştir. Ölçeğin iç tutarlılık katsayısı .91 bulunmuştur ve test-tekrar test

güvenirliği .88 ila .94 arasında değişmektedir (Furlan ve ark., 2009).

Cassady ve Finch (2015) Bilişsel Sınav Kaygısı Ölçeğini yeniden revize ederek 25 maddelik CTAR ölçeğini oluşturmuşlardır. Ölçek aynı şekilde 4'lü dereceleme üzerinde ve tek boyuttan oluşmaktadır ve ölçekte ters madde bulunmamaktadır. Ölçeğin gözden geçirilmiş yeni formu (CTAR) Bozkurt ve ark. (2017) tarafından Türkçeye uyarlanmış (T-CTAR), geçerlik ve güvenirlik çalışmaları yapılmıştır (ölçeğin örnek maddeleri için *bknz* Appendix J). Ölçeğin uyarlama çalışmasına farklı lise türlerinde öğrenim gören 1075 lise öğrencisi katılmıştır. Uyarlama çalışmasının ilk basamağında 536 öğrenci ile Açımlayıcı Faktör Analizi yapılmış ve ölçeğin 22. ve 24. maddelerinin kültürel gerekçelerle .32'un altında yüklendiği görülerek çıkarılmasına karar verilmiştir. Böylece Bilişsel Sınav Kaygısı Ölçeği'nin gözden geçirilmiş halinin Türkçe formu 25 madde yerine 23 maddeden oluşmaktadır. Elde edilen bu sonuçları doğrulamak üzere 539 öğrenci ile yapılan doğrulayıcı faktör analizi sonuçlarına göre, ölçeğin 23 maddelik formunun lise öğrencileri ile daha iyi sonuçlar gösterdiği bulunmuştur. Bu sonuçlara göre Bilişsel Sınav Kaygısı Ölçeği'nin Türkçe formu 23 maddeden oluşmaktadır. Ölçeğin iç tutarlılık katsayısının Türkçe formu için .93 olduğu bulunmuştur.

Ancak bu çalışmanın amacı üniversite öğrencilerinin bilişsel sınav kaygısını belirlemek olduğundan, daha önce lise öğrencileri ile Türkçeye uyarlanmış ölçeğin üniversite öğrencileri örnekleminde doğrulayıcı faktör analizi yapılmasına ihtiyaç duyulmuştur. Bu bağlamda, bu çalışmada 23 maddelik Bilişsel Sınav Kaygısı Ölçeğinin Türkçe formu (T-CTAR) 715 üniversite öğrencisine (351 kadın, 364 erkek) uygulanmış ve doğrulayıcı faktör analizi yapılmıştır. Elde edilen sonuçlar ölçeğin bu çalışmanın örneklemini oluşturan üniversite hazırlık okulu öğrencilerinde de tek boyutlu yapısının doğrulandığını göstermiştir: [Satorra-Bentler χ^2 (224) = 1001.56, *p* =.00; *χ^2/df-oranı* = 4.47; *NFI* = .96, *CFI* = .97, *RMSEA* = .07, *SRMR* = .05]. Bu bulgular ölçeğin kabul edilebilir uyum indekslerine sahip olduğunu göstermiştir. Ayrıca yine bu çalışma kapsamında ölçeğin üniversite öğrencileri örnekleminde test-tekrar test güvenirliği hesaplanmıştır. Ölçek 48 hazırlık

öğrencisine iki hafta arayla uygulanmış ve yapılan ölçümler sonucunda test tekrar test güvenirlik kat sayısınınım .93 olduğu görülmüştür. Tüm bu bilgiler ışığında T-CTAR ölçeğinin bu örneklemde kullanılmak üzere geçerli ve güvenilir bir ölçek olduğu görülmüştür.

2.3.3 Durumsal Kendini Affetme Ölçeği

Durumsal Kendini Affetme Ölçeği Wohl ve ark. (2008) tarafından geliştirilmiştir. Ölçek 4'lü dereceleme üzerinde (1: Asla; 4: Tamamen) 17 maddeden oluşmaktadır. Ölçekte "Kendini Affedici Duygular" ve "Hareketler ve Kendini Affedici İnanışlar" olmak üzere iki alt boyut bulunmaktadır. Ölçekten alınan yüksek puanlar kişinin kendini affetmesinin yüksek olduğunu göstermektedir. Ölçekte yer alan 2, 4, 7, 8, 11, 12, 14, 16 ve 17. maddeler ters maddedir. Kendini Affedici Duygular ve Hareketler alt boyutu için iç tutarlılık katsayısı .86, Kendini Affedici İnanışlar alt boyutunun iç tutarlılık katsayısı ise .91 olarak bulunmuştur.

Ölçeğin Türkçe formu bulunmadığından bu çalışma kapsamında pilot uygulama yapılarak ölçeğin Türk kültürüne uyarlama çalışması yapılmıştır. Ölçeği geliştiren yazar ve Uygulamalı İnsan Araştırmaları Etik Kurulu'ndan alınan izinlerin ardından, ölçek beş uzman tarafından Türkçeye çevrilmiş ve orijinal formdaki ifadeleri en iyi yansıtan maddeler seçilmiştir. Elde edilen Türkçe form kolayda örnekleme yöntemi ile 455 hazırlık öğrencisine (251 kadın, 204 erkek) çevrimiçi uygulanmıştır. Bu kapsamda madde yüklerinin nasıl dağıldığını test etmek amacıyla açımlayıcı faktör analizi yapılmış ve ölçeğin iki boyutlu yapıyı desteklediği ancak bazı maddelerin orijinal formdan farklı yüklendiği görülmüştür. Yapılan analizler Türk kültüründe ölçekteki kendini affetme ile ilgili olumlu algı oluşturan ifadelerin bir boyuta, olumsuz ifadelerin ise diğer boyuta toplandığını göstermiştir. Bu bağlamda Durumsal Kendini Affetme Ölçeğinin Türkçe formu "Kendini Affetmedeki Olumlu Algı" ve "Kendini Affetmedeki Olumsuz Algı" olmak üzere iki alt boyuttan oluşmuştur. Sonuç olarak elde edilen bu yapıyı doğrulamak üzere farklı bir örneklem üzerinde (n=715) doğrulayıcı faktör analizi yapılmış ve sonuçlar bu yapının çalışmanın örneklemini oluşturan üniversite hazırlık okulu öğrencileri üzerinde kabul edilebilir

değerlerle doğrulandığını göstermiştir: [Satorra Bentler χ^2 (113) = 550.22, *p* =.00; *χ^2/df- oranı* = 4.86; *GFI* = .90, *CFI*= .97, *RMSEA* = .07, *SRMR* = .06]. Son olarak ölçeğin iç tutarlılık katsayısı .91, olumlu algı alt boyutunun iç tutarlılık katsayısı .87 ve olumsuz algı alt boyutunun iç tutarlılık katsayısı .89 olarak bulunmuştur. Durumsal Kendini Affetme Ölçeğinin Türkçe formu iki hafta arayla 54 hazırlık öğrencisine uygulanmış ve test-tekrar test güvenirliği .79 olarak bulunmuştur.

2.3.4 Mükemmeliyetçi Düşünceler Ölçeği

Mükemmeliyetçi Düşünceler Ölçeği, Flett ve ark. (1998) tarafından mükemmeliyetçiliğe yönelik otomatik düşüncelerin sıklığının ölçülerek mükemmeliyetçi bilişlerin belirlenmesi amacıyla geliştirilmiştir. Ölçek 4'lü dereceleme ölçeğine sahiptir (0: Asla; 4: Her zaman). Toplam 25 madde ve tek boyuttan oluşmaktadır. Ölçekten toplam puan alınabilmektedir ve alınan yüksek puanlar mükemmeliyetçi düşüncelerin fazla olduğunu göstermektedir. Ölçeğin iç tutarlılık katsayısı .96, test-tekrar test güvenirliği .67 olarak bulunmuştur. Ölçeğin geçerliğini test etmek amacıyla kaygı, depresyon, aşırı genelleme gibi çeşitli ölçeklerle karşılaştırılması yapılmıştır (Flett ve ark., 2007). Ölçeğin Türkçeye uyarlaması henüz yapılmadığından bu çalışma kapsamında pilot uygulama ile ölçek öncelikle Türkçeye uyarlanmıştır.

Ölçeğin Türkçeye uyarlama çalışması için gerekli izinlerin alınmasının ve maddelerin çevirisine ilişkin gerekli süreçlerin takip edilmesinin ardından, Türkçe ölçek (ölçeğin örnek maddeleri için *bknz* Appendix N) 715 hazırlık okulu öğrencisine (351 kadın, 364 erkek) uygulanmıştır. Ölçeğin tek boyutlu yapısının Türk kültüründe geçerli olduğunu belirlemek amacıyla LISREL 8.80 programı kullanılarak doğrulayıcı faktör analizi yapılmıştır. Yapılan analiz sonucuna göre ölçeğin üniversite hazırlık okulu örnekleminde tek faktörlü yapısının iyi uyum indeksleri göstererek doğrulandığı bulunmuştur: [Satorra-Bentler χ^2 (265) = 1285.96, *p* =.00; *χ^2/df- oranı* = 4.85; *GFI* = .89, *CFI*= .96, *RMSEA* = .07, SRMR = .06]. Son olarak ölçeğin güvenirlik katsayısı .94 ve 51 hazırlık öğrenciyle iki hafta arayla yapılan test-tekrar test güvenirliği .89 olarak bulunmuştur.

2.3.5 Drexel Ayrışma Ölçeği

Drexel Ayrışma Ölçeği Forman ve ark. (2012) tarafından duygu ve düşüncelerden uzaklaşabilme becerisini ölçmek amacıyla geliştirilmiştir. Ölçek 5'li dereceleme ölçeği üzerinde (0: Hiç; 4: Çok fazla) 10 madde ve tek boyuttan oluşmaktadır. Ölçek üzerinden toplam puan hesaplamak mümkündür ve yüksek puanlar içsel duygu ve düşüncelerden ayrışabilme becerisinin yüksek olduğunu göstermektedir. Ölçekte ters madde yoktur ve iç tutarlık katsayısı .83 bulunmuştur. Ölçeğin yönergesinde ayrışma tanımına ayrıntılı yer verilmiştir ve ölçek maddelerinde katılımcılardan verilen senaryolarda ayrışma becerisini ne ölçüde kullanabildiklerini belirtmelerini istenmiştir. Drexel Ayrışma Ölçeğinin Türkçe formu bulunmaması nedeniyle bu çalışma kapsamında öncelikle ölçeğin Türkçeye uyarlama çalışması yapılmıştır.

Gerekli izinlerin alınmasının ardından ölçek, gerekli basamaklar takip edilerek Türkçeye çevrilmiştir. Drexel Ayrışma Ölçeğinin Türkçe formunun (ölçeğin örnek maddeleri için *bknz* Appendix O) 715 üniversite öğrencisine (351 kadın, 364 erkek) uygulanmıştır. Ölçeğin tek faktörlü yapısının hazırlık okulu öğrencileri örnekleminde doğrulanıp doğrulanmadığını belirlemek üzere LISREL 8.80 programı kullanılarak doğrulayıcı faktör analizi yapılmıştır. Elde edilen sonuçlar ölçeğin tek boyutlu yapısının çalışmaya katılan hazırlık okulu öğrencileri örnekleminde mükemmel uyum indeksleri göstererek doğrulandığına işaret etmektedir: [Satorra-Bentler χ^2 (33) = 53.49, *p* =.00; *χ^2/df- oranı* = 1.62; *GFI* = .97, *CFI*= .98, *RMSE*A = .04, *SRMR* = .04]. Drexel Ayrışma Ölçeğinin güvenirliğini belirlemek üzere Cronbach Alpha iç tutarlık katsayısı hesaplanmış ve .80 olarak bulunmuştur. Ayrıca ölçeğin test-tekrar test güvenirliği 52 hazırlık öğrenci ile yapılmış ve güvenirlik katsayısı .81 olarak hesaplanmıştır.

2.3.6 Ruminasyon Ölçeği

Ruminasyon Ölçeği, Nolen-Hoeksema ve Morrow (1991) tarafından ruminasyon tepkilerini belirlemek üzere geliştirilen Response Styles Questionnaire'in alt boyutudur. Ölçeğin orijinal formu 4'lü dereceleme ölçeği (1:Neredeyse hiç; 4:Neredeyse her zaman) üzerinde 21 maddeden oluşmaktadır ve iç tutarlılık katsayısı

.89'dur. Bu ölçekten alınan yüksek puanlar ruminasyon yapmaya yatkınlığın arttığına işaret etmektedir. Ruminasyon ölçeğinin kısa formu Treynor ve ark. (2003) tarafından geliştirilmiştir ve 10 maddeden oluşmaktadır. Ölçeğin kısa formu "saplantılı düşünme" ve "derin düşünme" olmak üzere iki alt boyuttan oluşmaktadır. Kısa formun iç tutarlık katsayısı .85 olarak bulunmuştur. Ölçeğin kısa formu Türkçeye Erdur-Baker ve Bugay (2012) tarafından çevrilmiş (ölçeğin örnek maddeleri için *bknz* Appendix L) ve doğrulayıcı faktör analizi sonuçlarının iyi uyum gösterdiği bulunmuştur. İç tutarlılık katsayısı .85'tir. Ölçekten alınan puanlar 10 ila 40 arasında değişmektedir.

Ruminasyon Ölçeğinin bu çalışmada yer alan hazırlık öğrencisi örnekleminde (n=715) geçerliliği ve güvenirliği test edilmiştir. Elde edilen doğrulayıcı faktör analizi sonuçları iyi uyum indekslerine işaret etmektedir: [Satorra Bentler χ^2 (34) = 99.44, *p* =.00; χ^2/df- *oranı* = 2.92; *GFI* = .95, *CFI* = .98, *RMSE*A = .05, *SRMR* = .05]. İç tutarlık katsayısı tüm ölçek için .86, "saplantılı düşünme" alt boyutu için .77 ve "derin düşünme" alt boyutu için .73 olarak bulunmuştur.

2.3.7 Kabul ve Eylem Ölçeği-II

Kabul ve Eylem Ölçeği, Hayes ve ark. (2004) tarafından psikolojik esnekliği ölçmek amacıyla geliştirilmiştir. Ölçek 16 maddeden oluşmaktadır. Ölçekten alınan yüksek puanlar kişinin psikolojik esnekliğe sahip olmadığını, aksine psikolojik esneksizliğini göstermektedir. Alınan düşük puanlar ise psikolojik esnekliğin fazla olduğunu göstermektedir. Ölçeğin düşük iç tutarlılığı, Bond ve ark.'nı (2011) ölçeği revize etmeye yönlendirmiştir. Böylece 7'li dereceleme ölçeği üzerinde (1: Hiç doğru değil; 7: Her zaman doğru) 7 maddeden oluşan Kabul ve Eylem Ölçeği-II geliştirilmiştir. Ölçek tek faktörlü bir yapıya sahiptir ve iç tutarlık katsayısı .84, test-tekrar test güvenirliği .81 olarak bulunmuştur.

Kabul ve Eylem Ölçeği-II'nin Türkçeye uyarlama çalışması Meunier ve ark. (2014) tarafından yapılmıştır (ölçeğin örnek maddeleri için *bknz* Appendix K). Ölçeğin bu çalışmaya katılan 715 hazırlık öğrencisi üzerindeki doğrulayıcı faktör analizi sonuçları iyi uyum indeksleri göstermiştir: [Satorra Bentler χ^2 (12) = 38.61, *p* =.00;

$χ²/df$- *oranı* = 3.21; *GFI* = .98, *CFI* = .99, *RMSE*A = .06, *SRMR* = .03]. Ölçeğin iç tutarlık katsayısı .88 ve test-tekrar test güvenirliği .78 olarak bulunmuştur. Kabul ve Eylem Ölçeği-II'nin bu çalışma kapsamında geçerlik ve güvenirliği hesaplanmış, sonuçlar iyim uyum indekslerine işaret ederken, Cronbach Alpha katsayısı .90 olarak hesaplanmıştır.

2.4 Veri Toplam Süreci

Bu çalışma için öncelikle Orta Doğu Teknik Üniversitesi İnsan Araştırmaları Etik Kurulu onayı (*bknz* Appendix A) alınmıştır. Araştırmanın katılımcılarının öğrenim gördüğü Temel İngilizce Bölüm Başkanlığı'ndan gerekli izinler alınmıştır. Tabakalı örneklem seçiminin ardından ölçeklerin İngilizce Hazırlık Okulu sınıflarında uygulanmıştır. Veri toplama sürecinde katılımcılara araştırmanın amacının anlatılmasına ve katılımın gönüllü olduğunun vurgulanmasına özellikle dikkat edilmiştir. Ölçekler sınıflarda kağıt-kalem testi şeklinde uygulanmış ve uygulama yaklaşık 20 dakika sürmüştür.

2.5 Veri Analizi

Bu çalışmada, SPSS 24 programı kullanılarak değişkenlerin betimsel analizleri yapılmış, ölçek uyarlama çalışmalarında Açımlayıcı ve Doğrulayıcı Faktör Analizi uygulanmıştır. Çalışmanın bütününde ise alan yazına dayalı olarak değişkenlerin oluşturduğu modeli test etmek amacıyla LISREL 8.80 programı aracılığı ile Yapısal Eşitlik Modellemesi yapılmıştır. Ölçüm modelinin ardından, değişkenlerin birbirleriyle olan doğrudan ve dolaylı ilişkileri raporlanmış ve tartışılmıştır.

3. BULGULAR

Bilişsel sınav kaygısını yordayan değişkenlerin araştırıldığı bu çalışmada ana amaç alan yazına dayalı öne sürülen modeli test etmektir. Veri seti kayıp veri analizi, uç değerler, doğrusallık, çoklu doğrusallık ve normallik testleri açısından test edilmiştir. Elde edilen sonuçlar veri setinin çoklu normal dağılımı sağlamadığını göstermiştir. Bu nedenle Asimtotik Kovaryans Ki-kare değeri hesaplanarak devam edilmiştir. Ancak öncesinde bazı betimsel analizler yapılarak değişkenlerle ilgili ayrıntılı bilgi

sağlanmıştır.

3.1. Betimsel Analiz Bulguları

Betimsel analizde, çalışmada yer alan içsel ve dışsal değişkenleri ölçen ölçme araçlarından alınabilecek en düşük ve en yüksek puanlar ile katılımcıların ortalamaları raporlanmıştır. Buna göre, bilişsel sınav kaygısı ölçeğinde alınabilecek puanlar 23 ila 92 arasında değişmektedir ve çalışmanın katılımcılarının ortalaması 45.74 olarak bulunmuştur (SS=11.95). Ruminasyon için alınabilecek puanlar 10 ila 40 arasındadır ve ortalama 21.20'dir (SS=5.53). Kendini affetme değişkeni için alınabilecek puanlar 17 ila 68 arasında değişirken, katılımcıların ortalamasının 48.77 (SS=9.60) olduğu görülmüştür. Mükemmeliyetçi düşünceler için alınabilecekler puanlar 25 ila 100 arasında; bilişsel ayrılma için ise 0 ila 50 arasında değişmektedir. Katılımcıların ortalaması mükemmeliyetçi düşünceler için 69.20 (SS=20.62) iken bilişsel ayrışma için 24.85 (SS=8.14)'tir. Son olarak psikolojik esneklikten alınabilecek en düşük puan 7, en yüksek puan 49'dur. Katılımcıların ortalaması 21.10 olarak hesaplanmıştır (SS=9.62).

Cassady ve Johnson (2002) bilişsel sınav kaygısı ölçeğinde 27 ila 61 puan aralığını düşük bilişsel sınav kaygısı olarak tanımlamıştır. Buna göre, bu çalışmanın katılımcıları düşük bilişsel sınav kaygısına sahiptir. Benzer şekilde, Bozkurt ve ark.'nın (2017) bu ölçeği kullanarak lise öğrencileri ile yaptıkları çalışmada bilişsel sınav kaygısı ortalaması 51.69 olarak bulunmuştur. Lise öğrencilerinin de benzer şekilde düşük bilişsel sınav kaygısı yaşadığı görülmüştür. Bu çalışmanın bulgularına paralel şekilde, Erdur-Baker ve Bugay (2012) üniversite öğrencilerinin ruminasyon ortalamalarının 21-22 aralığında olduğunu bulmuştur. Bu çalışmada kendini affetme düzeyi ortalaması 2.87'dir. Wenzel ve ark. (2012) üniversite öğrencileri ile yaptığı çalışmada kendini affetme düzeyin ortalamasını 3.46 olarak raporlamıştır. Flett ve ark. (1998) üniversite öğrencilerinin mükemmeliyetçi düşüncelerini araştırdığı çalışmasında ortalamayı 43.08 olarak hesaplamıştır. Ayrıca bilişsel ayrışma ölçeğinde Forman ve ark. (2012) üniversite öğrencilerinin ortalamasının 27.30 olduğunu bulmuştur. Son olarak, Meunier ve ark. (2014) lisans ve lisansüstü

öğrencilerle yaptıkları araştırmasında öğrencilerin psikolojik esneklik ortalamasını 20.26 olduğunu belirtmiştir.

3.2. Model Testi Bulguları

İçsel ve dışsal değişkenlerin model içerisinde test edilebilirliğini mümkün kılmak için (Kline, 2011b) madde sayısı fazla olan ölçeklere *"parselleme (item parceling)"* yöntemi uygulanmıştır. Bu yöntemin daha çok tek boyutlu ölçekler için kullanılması önerilmektedir (Little ve ark., 2002). Bu nedenle tek boyutlu olan Bilişsel Sınav Kaygısı Ölçeği ve Mükemmeliyetçi Bilişler Ölçeği beş parsele, Bilişsel Ayrışma Ölçeği ise iki parsele ayrılmıştır. Alt boyutları olan Ruminasyon Ölçeği ve Durumsal Kendini Affetme Ölçeği iki parsele bölünmüştür. Kabul ve Eylem Ölçeğinin parsellenmesine gerek duyulmamıştır.

Model testi analizinin ilk aşaması olarak ölçüm modeli test edilmiş ve elde edilen sonuçlar, bilişsel sınav kaygısı, psikolojik esneklik, ruminasyon, kendini affetme, mükemmeliyetçi düşünceler ve bilişsel ayrışma değişkenlerinin bir model üzerinde test edilmesinin uygun olduğunu göstermiştir: [Satorra-Bentler χ^2 (214) = 702.96, *p* = .00; χ^2/df- oranı = 3.28; *RMSEA* = .057; *CFI* = .98; *NFI*= .97; *GFI* = .91; *SRMR* = .05]. Elde edilen sonuçların Hu ve Bentler (1999), Kline (2011b) ve Schumacker ve Lomax (2010)'ın belirlemiş olduğu uyum indekslerine uygun olduğu saptanmıştır. Böylece alan yazına dayalı model testini analiz etmenin mümkün olduğuna karar verilmiştir.

Model testinin asıl kısmı olan yapısal eşitlik modelinin test edilmesi aşamasında içsel ve dışsal değişkenler ile dolaylı etkinin test edilmesini sağlayan aracı değişken belirlenmiştir. Çalışmanın araştırma sorusuna paralel şekilde, psikolojik esnekliğin dolaylı etkisi yoluyla, ruminasyon, kendini affetme, mükemmeliyetçi düşünceler ve bilişsel ayrışmanın, bilişsel sınav kaygısını ne ölçüde yordadığını belirlemek üzere LISREL 8.80 programı kullanılarak yapısal model test edilmiştir. Elde edilen bulgular modelin iyi uyum indekslerine sahip olduğu ve kabul edilebilir olduğunu göstermiştir: Satorra-Bentler χ^2 (215) = 915.23, *p* = .00; χ^2/df- oranı = 4.25; *RMSEA* = .06; *CFI* = .98; *NFI*= .97; *GFI* = .90; *SRMR* = .06. Yapısal modelin standardize

edilmiş ve edilmemiş değerleri, *t* değerleri ve açıklanan varyansların tamamı anlamlıdır. İlgili değişkenler bilişsel sınav kaygısının % 36'sını, psikolojik esnekliğin ise % 63'ünü açıklamıştır.

Her bir dışsal değişkenin, içsel ve dolaylı etkiyi sağlayacak aracı değişkenle olan ilişkisinin yönü belirlenmiştir. Ruminasyon ve mükemmeliyetçi düşünceler ile psikolojik esneksizlik arasındaki ilişki pozitiftir. Kişilerin ruminasyon düzeyi artıkça psikolojik esneksizlikleri de aynı şekilde artmaktadır. Diğer taraftan, kendini affetme ve bilişsel ayrışma ile psikolojik esneksizlik arasındaki ilişki negatiftir, yani kişiler kendini affettikçe ya da bilişsel ayrışma yapabildikçe psikolojik esneksizlikleri azalmakta ya da psikolojik esneğe daha fazla yaklaşmaktadırlar. Son olarak, psikolojik esneksizlik ile bilişsel sınav kaygısı arasındaki ilişki pozitiftir yani bireylerin psikolojik esnek olmayışı onların bilişsel sınav kaygılarını artırmaktadır.

Test edilen yapısal modelde yer alan dışsal değişkenlerin içsel değişkenle doğrudan ve dolaylı ilişkisi de ayrıca analiz edilmiştir. Elde dilen bulgulara göre ruminasyon (β=.49, *p*<.01), kendini affetme (β=-.13, *p*<.01), mükemmeliyetçi düşünceler (β=.12, *p*<.01) ve bilişsel ayrışma (β=-.27, *p*<.01) değişkenlerinin tamamı psikolojik esneklik üzerinde doğrudan etkiye sahiptir. Ancak bu değişkenlerin bilişsel sınav kaygısı üzerindeki doğrudan ilişkisine bakıldığında ruminasyon (β=.22, *p*<.01), mükemmeliyetçi düşünceler (β=.18, *p*<.01) ve bilişsel ayrışma (β=-.21, *p*<.01) bilişsel sınav kaygısı üzerinde doğrudan etkiye sahipken, kendini affetme (β=-.01, *p*>.01) değişkeninin bilişsel sınav kaygısı üzerinde doğrudan etkiye sahip olmadığı görülmüştür. Ayrıca psikolojik bilişsel sınav kaygısı üzerindeki doğrudan etkisi yine anlamlıdır (β=.15, *p*<.01). Analizler sonucunda psikolojik esnekliğin dolaylı etkisinin rolüne bakıldığında, kendini affetme (β=-.02, *p*>.01) dışındaki tüm değişkenlerin; ruminasyon (β=.04, *p*<.01), mükemmeliyetçi düşünceler (β=.02, *p*<.01), bilişsel ayrışma (β=-.04, *p*<.01); bilişsel sınav kaygısı üzerinde dolaylı etkiye sahip olduğu sonucuna varılmıştır. Benzer şekilde, içsel değişken üzerindeki toplam etkiler göz önüne alındığında, ruminasyon (β=.26, *p*<.01), mükemmeliyetçi düşünceler (β=.20, *p*<.01) ve bilişsel ayrışmanın (β=-.25, *p*<.01), bilişsel sınav

kaygısı üzerinde etkili olduğunu söylemek mümkündür fakat kendini affetmenin psikolojik esnekliğin dolaylı etkisi yoluyla bilişsel sınav kaygısını yordamadığı bulunmuştur.

4. TARTIŞMA

Bu bölümde, analiz sonuçları model testi için öne sürülen hipotezler ışığında değerlendirilmiştir. Elde edilen bulgular, öne sürülen yapısal modelin kabul edildiğini, ancak doğrudan, dolaylı ve toplam etkilere bakıldığında, yalnızca ruminasyon, mükemmeliyetçi düşünceler ve bilişsel ayrışma değişkenlerinin bilişsel sınav kaygısını doğrudan ve dolaylı olarak yordadığını öne süren hipotezleri doğrulamıştır. Fakat sonuçlar, kendini affetme değişkeninin bilişsel sınav kaygısını doğrudan ve dolaylı yordadığını öne süren hipotezi reddetmiştir. Alan yazınla benzer şekilde, kendini affetme, bilişsel sınav kaygısıyla doğrudan ilişkili olan psikolojik esneklik değişkeni ile ilişkili görülürken, bu değişkenin bilişsel sınav kaygısıyla bir ilişkisi bulunmamıştır. Test edilen yapısal modelin sonuçlarına göre, ruminasyon ve mükemmeliyetçi düşünceleri yüksek olan, ancak kendini affetme ve bilişsel ayrışma puanları düşük olan öğrenciler psikolojik esneklikleri de az olduğunda daha yüksek bilişsel sınav kaygısı yaşamaktadırlar.

Psikolojik esneklik kavramı yapılan çalışmalarda sıklıkla aracı rolü üstlenmektedir. Bu bilgiden yola çıkılarak bilişsel sınav kaygısını yordayabilecek çeşitli değişkenlerin psikolojik esneklik kavramının dolaylı etkisiyle test edilmesi amaçlanmıştır. İlgili alan yazında sınav kaygısının KKT ışığında ele alındığı çalışmalara rastlamak pek mümkün değildir (Brown ve ark., 2011). Bu nedenle bu çalışmada, sınav kaygısıyla ilişkili olabilecek değişkenlerin bilişsel sınav kaygısıyla hem doğrudan hem de dolaylı ilişkilerini araştırmak amaçlanmıştır. Psikolojik esnekliğin ruminasyon, mükemmeliyetçi düşünceler, kendini affetme, bilişsel ayrışma ve bilişsel sınav kaygısıyla doğrudan ilişkiye sahip olması şaşırtıcı bir bulgu olmamıştır. Çünkü alan yazın ruminasyon yapan kişilerin şu anda olma durumundan uzaklaştığını dolayısıyla psikolojik esnek oluşun temel dayanaklarından birini yapamadıklarını söylemektedir (Martin ve Tesser, 1996). Benzer şekilde,

mükemmeliyetçi düşüncelere sahip kişilerin ideal olanı arama yolunda olduklarından kendi değerlerinin farkında olamadıkları (Harris, 2013), bu nedenle de psikolojik esnekliği sağlayamadıkları belirtilmektedir (Hayes ve Smith, 2005). Benzer biçimde, psikolojik esnek olmama durumu bilişsel sınav kaygısı ile pozitif yönde anlamlı bir ilişkiye sahiptir. Yani bireylerin psikolojik esnekliği arttıkça bilişsel sınav kaygısı yaşamaları da artmaktadır. Bilişsel ayrışma yapabilen kişiler, kaygılı düşüncelerden kendilerini uzaklaştırarak olaylara dışarıdan bakabildikleri için psikolojik esnekliği sağlayabilmektedir (Hayes ve ark., 2010; Hayes ve ark., 2012). Kaygılı düşünceleri kabul edip bu düşüncelerle savaşmak yerine, onları değerlerine ulaşmada bir basamak olarak görmek psikolojik esnekliği arttırdığı için problemi işlevsel bir amaca hizmet eder hale getirmektedir. Son olarak, Zettle ve ark.'na (2009) göre kendini affedebilen ve psikolojik esnekliğe sahip bireyler, benliklerini olaylara göre değil kendi sahip oldukları değerler doğrultusunda değerlendirdikleri için psikolojik esneklikleri ve bu nedenle de kendilerini affetme düzeyleri artmaktadır (Batten, 2011). Özetle, az ruminasyon yapan bireyler anda kalabilmekte, mükemmeliyetçi düşüncelere sahip olmayan kişiler kendi değerleri doğrultusunda yaşayabilmekte, kendini affedenler kendilerini olaylara göre değerlendirmeden yaşayabilmekte ve bilişsel ayrışma yapabilenler kaygılı düşüncelere sahip olduğunu kabul edip kendileri ile bu kaygılı düşünceler arasında mesafe koyabilmekte ve böylece psikolojik esnekliği sağlayabilmektedir.

Katılımcıların ruminasyon düzeylerinin bilişsel sınav kaygısı üzerindeki dolaylı, doğrudan ve toplam etkisinin pozitif yönde ve anlamlı olduğu bulunmuştur. Yani ruminasyon düzeyi yüksek öğrenciler, psikolojik esneklikten uzaklaştıkça daha fazla bilişsel sınav kaygısı yaşamaktadır. Bu bulgu Brown ve ark.'nın (2011) sonuçlarıyla benzerlik göstermektedir. Brown ve ark. ruminasyonun sınav kaygısıyla pozitif yönde ilişkili olduğunu bulmuştur. Aynı şekilde, Grant ve Beck (2010) de sınav kaygısı yaşayan öğrencilerin sınavdan sonra ruminasyon gösterme yatkınlığının arttığını söylemiştir. Türkiye'de üniversite öğrencilerinin sınav kaygısı üzerine yapılan bir çalışma, ruminasyonun saplantılı düşünme alt boyutunun sınav kaygısı üzerinde etkili olduğunu ancak derin düşünme alt boyutunun sınav kaygısıyla ilişkili

olmadığını göstermiştir (Dora, 2012). Bilişsel sınav kaygısı alan yazında oldukça yeni kavramlardan olduğu için bu alanda yapılan çalışmalar yeni yeni ortaya çıkmaktadır. Cassady (2004) bilişsel sınav kaygısı yüksek öğrencilerin algıladıkları sınav tehdidinin benliklerine zarar veren ruminasyonu içerdiğini söylemiştir. Son olarak yapılan çalışmalar, bu çalışmanın sonuçlarına benzer şekilde, ruminasyon ile psikolojik esnekliğin ters yönde ilişkili olduğunu, ruminasyon düzeyi yüksek öğrencilerin psikolojik olarak esnek davranamadıklarını göstermektedir (Martin ve Tesser, 1996).

İlgili alan yazında bilişsel sınav kaygısını yordayacağı öne sürülen değişkenlerden diğeri de mükemmeliyetçi düşüncelerdir. Araştırmanın sonuçlarına bakıldığında, mükemmeliyetçi düşüncelerin bilişsel sınav kaygısı üzerine doğrudan ve dolaylı etkisinin olduğu, ayrıca test edilen model ile toplam etkisinin de olduğu görülmüştür. Bu şaşırtıcı bir sonuç olmamıştır çünkü Eum ve Rice'ın (2011) da belirttiği gibi mükemmeliyetçi düşünceler bilişsel sınav kaygısıyla pozitif ilişkilidir. Uyumlu mükemmeliyetçi düşünceler, sınav kaygısını olumlu etkileyebilecekken; uyumsuz mükemmeliyetçi düşünceler, kişinin sınava atfettiği önemi artırmakta ve dolayısıyla kaygının artarak akademik başarının olumsuz etkilenmesine yol açmaktadır (Mills ve Blankstein, 2000; Weiner ve Carton, 2012). Ayrıca KKT'nin önemli kavramlarından biri olan değerler, mükemmeliyetçi düşüncelere sahip bireylerin psikolojik esnekliğini kişinin kendi değerleri yerine, çevresinden etkilenerek sahip olduğu olması gereken değerleri benimsemesi nedeniyle kısıtlamaktadır (Strosahl ve Robinson, 2009). Yapılan çalışmalar psikolojik esnekliğin mükemmeliyetçi düşüncelere sahip kişilerde az olduğunu göstermektedir çünkü olumsuz düşüncelerden kurtulma çabasındaki artış, bireylerin endişe düzeyini artırmakta ve anda kalmayı zorlaştırarak psikolojik esnekliğin az olmasına yol açmaktadır (Santanello ve Gardner, 2007). Dolayısıyla alan yazın, mükemmeliyetçi düşüncelerin psikolojik esneklikle doğrudan ilişkisi ve psikolojik esnekliğin dolaylı etkisi ile bilişsel sınav kaygısını yordamadaki gücü araştırma bulgularıyla da paralellik göstermektedir.

Bilişsel ayrışma dışsal değişkenine bakıldığında psikolojik esnekliğin dolaylı etkisi ile bilişsel sınav kaygısını anlamlı biçimde yordadığı görülmüştür. Yani bilişsel ayrışma yapabilen bireyler daha fazla psikolojik esneklik göstermekte ve bu kişiler daha az bilişsel sınav kaygısı yaşamaktadır. İlgili alan yazına bakıldığında bilişsel ayrışmanın psikolojik esnekliği sağlayan kavramlarından birisi olması nedeniyle psikolojik esneklik ile olan doğrudan ilişkisinin anlamlı olması şaşırtıcı bir bulgu olmamaktadır (Levin ve ark., 2012). Bilişsel ayrışma ve bilişsel sınav kaygısı ilişkisinin birlikte çalışıldığı araştırmalara rastlanmamıştır. Ancak bilişsel ayrışmanın kaygıyla baş etmede kullanılan ve psikolojik esnekliğin bir alt kategorisi olarak çalışıldığı araştırmalar bulunmaktadır. Bu kapsamda, Roberts ve Sedley (2016) oldukça güncel bir araştırma ile kaygı problemi ile baş etmede bilişsel ayrışmanın kullanılabileceğini söylemektedirler. Ayrıca Masuda ve ark. (2010) bilişsel ayrışmanın kişinin olumsuz düşüncelere inanma düzeyini azalttığını vurgulamıştır. Bilişsel ayrışmanın problemle baş etmeye çalışmak yerine kaygılı düşünceler ile araya mesafe koyarak bu düşüncelere dışardan bakmayı sağlamasının, bilişsel sınav kaygısı araştırmalarına olumlu katkı sağlayacağı düşünülmektedir. Çünkü yaşanılan sınav kaygısını azaltmaya çalışmak aslında problemi gün yüzünde tutmaya devam etmek anlamına gelmektedir (Hayes ve Lillis, 2012). Bu çalışma, bilişsel ayrışmanın bilişsel sınav kaygısıyla anlamlı ilişkisini ortaya çıkarması açısından değerlidir ve değerler kavramına bilişsel ayrışma ile yapılacak olası bir vurgu ile psikolojik esnekliğin artırılarak bilişsel sınav kaygısını azaltması yönünde alan yazında yapılacak araştırmalara ışık tutabilir. Brown ve ark.'nın (2011) belirttiği gibi sınav kaygısı problemiyle çalışmada bilişsel ayrışma etkinlikleri uygulanabilir ve öğrencilere düşünceler ile araya mesafe koyabilme becerisi kazandırılabilir.

Çalışmada alan yazın ışığında bilişsel sınav kaygısını yordayabileceği öne sürülen değişkenlerden bir diğeri kendini affetmedir ve bu çalışmanın bulguları bazı şaşırtıcı sonuçlara işaret etmektedir. Sonuçlara göre, kendini affetmenin psikolojik esneklik ile doğrudan ilişkisinin anlamlı olduğu ancak psikolojik esnekliğin dolaylı etkisi yoluyla bilişsel sınav kaygısını yordamadığı görülmüştür. İlgili alan yazın kendini

affetme ile kaygı arasında olumsuz yönde bir ilişki bulunduğunu göstermektedir (Berry ve ark., 2001; Webb ve ark., 2009). Ancak kendini affetmenin sınav kaygısı üzerindeki etkisini gösteren bir çalışmaya henüz rastlanmamıştır. Bu noktada, kendini affetme değişkenini bu model içerisinde test etmesinin dayanağı, kendini affetmenin psikolojik esneklik kavramıyla ilişkili olması (Thompson ve ark., 2005) ve psikolojik esnekliğin pek çok araştırmada dolaylı etkiye sahip olmasıdır.

Bu çalışmada, kişilerin kendini affetme düzeyleri ile psikolojik esneksizlikleri arasında olumsuz yönde anlamlı bir ilişki bulunmuştur. Bireylerin kendini affetme düzeyi arttıkça psikolojik esneksizlikleri azalmakta yani kişiler daha fazla psikolojik esnek olabilmektedir. Kendini affetmenin kaygı ile olumsuz yönde ilişkili olması (Berry ve ark., 2001; Ross ve ark., 2007) ve psikolojik esneklikle doğrudan ilişkili olması, bu çalışma kapsamında kendini affetme değişkeninin bilişsel sınav kaygısı üzerinde psikolojik esnekliğin dolaylı etkisi yoluyla test edilmesine dayanak oluşturmuştur. Ancak kendini affetmenin psikolojik esneklikle doğrudan ilişkili olsa da bilişsel sınav kaygısını dolaylı olarak yordamadığı bulunmuştur. Özetle, kişiler kendini affettikçe daha fazla psikolojik esneklik göstermekte ancak bu bilişsel sınav kaygısı yaşamalarında belirleyici bir faktör olarak karşımıza çıkmamaktadır. Kendini affetmenin bilişsel sınav kaygısıyla ilişkili olmamasının bir gerekçesi de kendini affetme kavramının duyuşsal yönünün fazla, bilişsel sınav kaygısının ise bilişsel yönünün fazla olması düşünülebilir. Ayrıca Luskin (2002)'in de belirttiği gibi bireyler bir olaya çok fazla önem atfederlerse affetme düzeyleri azalabilir. Öğrencilerin "çok önemli" şeklinde algıladıkları sınav için yaşadıkları sınav kaygısı göz önüne alındığında, kaygılı düşüncelere sahip oldukları için kendileri affetme düzeylerinin azaldığı da düşünülebilir. Türkiye'de kültürel olarak henüz çok fazla yerleşmemiş ve çalışılmamış konulardan biri kendini affetmedir (Bugay, 2010). Bu durum, bireylerin bireysel olarak davranışlarının sorumluluğunu almada yetersiz olmalarıyla yorumlanabilir.

Sonuç olarak, bu çalışmada bilişsel sınav kaygısını yordayan çeşitli değişkenler psikolojik esnekliğin dolaylı etkisi aracılığıyla test edilmiş ve elde edilen bulgular, henüz çok fazla araştırma yapılmamış bilişsel sınav kaygısı alan yazınına önemli

katkılar sağlamıştır. Kabul ve Kararlılık yaklaşımı, problemleri çözmeye ya da ortadan kaldırmaya çalışmanın, aslında problemi gün yüzünde tutmaya devam ettirdiğini, buradan yola çıkarak kişilerin psikolojik esnekliğini artırarak problemlere yaklaşımlarını değiştirmeyi amaçlamaktadır. Bu bağlamda, elde edilen bulgular ışığında bilişsel sınav kaygısı yaşayan bireylerin sınav kaygılarını azaltmaya çalışmak yerine psikolojik esnekliklerini etkileyen faktörleri belirlemek ve onlara psikolojik esnekliği nasıl sağlayabilecekleri yönünde destek olmak faydalı olacaktır. Öğrencilerin değerlerini keşfetmelerini ve attıkları adımların bu doğrultuda olduğunun farkına varmalarını sağlamak, onların yaşadıkları kaygıyı savaşılması gereken bir mekanizma değil, değerleri doğrultusunda yaşarken karşılarına çıkan ve kaygıya rağmen kaygıyla birlikte ilerleyebilecekleri bir durum olarak ele almalarına destek olur. Psikolojik esnekliğin bilişsel sınav kaygısı üzerindeki doğrudan etkisi ve ruminasyon, mükemmeliyetçi düşünceler ve bilişsel ayrışma ile bilişsel sınav kaygısı arasındaki dolaylı etkisi, sınav kaygısını ortadan kaldırmayı amaçlayan çalışmalar yerine kabul etmeyi ve psikolojik esnekliği artırarak kaygı ile kurulan ilişkiyi değiştirmeyi amaçlayan çalışmalar yapmanın önemini göstermiştir.

4.1. Araştırmaya ve Uygulamaya Yönelik Öneriler

Eğitime atfedilen önem arttıkça kaygının ya da stresin olmadığı bir eğitim ortamı düşünmek zorlaşmaktadır. Bu nedenle, var olan bu problemin ele alınmasında yapılacak uygulamaların çeşitlendirilmesi gerekmektedir. Bu kapsamda, bu çalışmanın sonuçları göz önüne alındığında, eğitim kurumlarının sınav kaygısı ile baş etmede; Kabul ve Kararlılık Terapisi uygulamalarını kullanmaları, özellikle üniversite yılları gibi öğrencilerin geleceklerine yönelik planlar yaptığı, başarılı olmayı önemsediği ve kişiliklerini geliştirdikleri bir zaman diliminde, onların akademik başarılarını azaltabilecek bir unsur olan sınav kaygısı ile baş etmede psikolojik esnekliklerini artıracak önleyici uygulamalara yer verilebilir.

Sınav kaygısı yaşayan öğrencilerin çoğunun destek almak üzere üniversitedeki psikolojik danışma ünitelerine başvurmadığını belirten çalışmadan yola çıkılarak (Valure, 2015), öğrencilerin sınav kaygısını yordayabilecek değişkenlerin

(ruminasyon, mükemmeliyetçi düşünceler, bilişsel ayrışma) dahil edildiği dikkat çekici etkinlikler ya da uygulamalar yapılabilir. Ayrıca Eifert ve Forsyth'ın (2005) önerdiğine benzer şekilde, üniversite düzeyinde çalışan psikolojik danışmanlara, sınav kaygısı odaklı problemlerin ele alınmasında KKT kullanılarak psiko-eğitim grup uygulamaları yapılması önerilebilir. Bunlarla birlikte farklı kültürlerde psikolojik esneklik kavramının araştırılması ve yapılan çalışmaların yaygınlaştırılması önerisinden yola çıkılarak (Brown ve ark., 2011) Türkiye'de üniversitelerde çalışan psikolojik danışmanlara KKT ışığında, danışanların psikolojik esnekliğini artırıcı deneysel uygulamalar yapmaları tavsiye edilebilir.

4.2. Sonraki Çalışmalar için Öneriler

Bu çalışmanın bulgularından yola çıkarak sonraki çalışmalar için bazı önerilerde bulunulabilir. Çalışmanın içerdiği birtakım sınırlılıkları da göz önünde bulundurarak gelecekteki çalışmalara ışık tutabilecek şu öneriler verilebilir. Çalışmada sınav kaygısını yordayabilecek değişkenlerin ilişkisini belirlemek üzere ilişkisel araştırma yöntemi kullanılmıştır. Neden-sonuç ilişkisinin verilmediği göz önünde bulundurulduğunda, sonraki araştırmalarda deneysel araştırma modelleri kullanılarak sınav kaygısını yordayan bu değişkenlerin rolü araştırılabilir.

Araştırmanın katılımcılarını bir devlet üniversitesinin İngilizce hazırlık sınıfında okuyan öğrenciler oluşturmaktadır. Sınav kaygısının test edildiği araştırmalarda, bütün öğrenciler için aynı sınava ilişkin kaygının ölçülüyor olması önemlidir. Bu nedenle tüm üniversite öğrencileri yerine hazırlık okulu seçilmiştir. Böylece bahsedilen sınav tüm öğrenciler için aynı sınavı ifade etmektedir. Ancak bu durum, bu çalışmanın sonuçlarının genellenebilirliğini etkilemektedir. Araştırmaya üniversite öğrencileri katıldığı halde araştırmanın sonuçlarını tüm üniversite öğrencilerine genellenemez. Bu nedenle benzer araştırmaların farklı sınıf düzeylerinde üniversite öğrencileri ile yürütülmesi önerilebilir.

Son olarak, bu çalışmanın bulguları ışığında, uygulama ve araştırmaya yönelik önerilerin de göz önünde bulundurulmasıyla sınav kaygısını yordayan bu modelin farklı eğitim düzeylerinde test edilmesi önerilebilir. Türkiye'de KKT çalışmaları

oldukça yenidir. Kabul ve Kararlılık terapisinin önleyici çalışmalarda kullanılması sınav kaygısı yaşayan öğrencilerin kaygıya bakış açılarının değiştirilmesinde faydalı olabilir. Hinton ve Kirmayer'in (2016) de belirttiği gibi bilişsel ve duygusal esnekliğin farklı kültürlerde iyileştirici etkisi sebebiyle Türk kültüründe de psikolojik esneklik çalışmalarının yükseköğretim, ilköğretim ve ortaöğretim düzeyinde artırılması sağlanabilir. Türkiye'de henüz çok yeni olan bilişsel ayrışma kavramı, bu çalışma kapsamında uyarlaması yapılan "Drexel Bilişsel Ayrışma Ölçeği" ile alan yazına kazandırılmıştır. Dolayısıyla araştırmacılar bu ölçeği kullanarak, gelecekte yapılacak çalışmalarla, deneysel ve ilişkisel çalışmalarla bilişsel ayrışmanın uygulamalarını arttırabilirler.

APPENDIX R

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü ☐

Sosyal Bilimler Enstitüsü ☒ X

Uygulamalı Matematik Enstitüsü ☐

Enformatik Enstitüsü ☐

Deniz Bilimleri Enstitüsü ☐

YAZARIN

Soyadı : AYDIN
Adı   : GÖKÇEN
Bölümü : EĞİTİM BİLİMLERİ-PSİKOLOJİK DANIŞMANLIK VE REHBERLİK

TEZİN ADI (İngilizce) : ASSESSING A MODEL OF COGNITIVE TEST ANXIETY: THE ROLE OF RUMINATION, SELF-FORGIVENESS, PERFECTIONISM COGNITIONS AND COGNITIVE DEFUSION THROUGH THE INDIRECT EFFECT OF PSYCHOLOGICAL FLEXIBILITY

TEZİN TÜRÜ : Yüksek Lisans ☐   Doktora ☒ X

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐

2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐

3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz. ☒ X

TEZİN KÜTÜPHANEYE TESLİM TARİHİ

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