EIGHTH GRADE STUDENTS' EMOTION REGULATION STRATEGIES DURING TEST TAKING: THE ROLE OF GENDER, COGNITIVE APPRAISAL PROCESSES, ACADEMIC SELF-EFFICACY, AND TEST ANXIETY

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ABSTRACT

EIGHTH GRADE STUDENTS' EMOTION REGULATION STRATEGIES DURING TEST TAKING: THE ROLE OF GENDER, COGNITIVE APPRAISAL PROCESSES, ACADEMIC SELF-EFFICACY, AND TEST ANXIETY

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The purpose of the study was to examine the role of test anxiety, academic self-efficacy, and cognitive appraisal processes in predicting eighth grade students' emotion regulation strategies during test taking. In addition, gender was included as a predictor in the study. The sample of the study consisted of 778 eighth grade students (398 females and 380 males) in 17 schools of Çankaya and Yenimahalle districts in Ankara. Emotion Regulation during Test Taking Scale (ERT) (Schutz, Distefano, Benson, & Davis, 2004), Anxiety subscale of Academic Emotions Questionnaire (AEQ) (Pekrun, Goetz, Titz, & Perry, 2002), and Academic Self-Efficacy Scale (ASE) (Jerusalem & Schwarzer, 1981) were used to collect the data.

Confirmatory factor analyses (CFA) were performed for the ERT, anxiety subscale of AEQ, and ASE scale. All of the scales were working as intended. Cronbach alpha coefficients were .85 for test anxiety, .76 for ASE, and ranged from .58 to .75 for ERT scale.

Four separate hierarchical regression analyses were conducted to examine the role of gender, cognitive appraisal processes (goal congruence, agency, and testing problem efficacy), academic self-efficacy, and test anxiety in predicting four emotion regulation strategies: task focusing, tension reduction, wishful thinking, and self blame strategies. For all strategies, almost all of the predictors were found statistically significant. Test anxiety was found to be the most powerful predictor for all the dependent variables. Girls tend to use more emotional regulation strategies than boys.

Keywords: Emotion Regulation Strategies, Cognitive Appraisal Processes, Academic Self-Efficacy, Test Anxiety, Gender.

ÖZ

SEKİNCİ SINIF ÖĞRENCİLERİNİN SINAV SIRASINDAKİ DUYGU DÜZENLEME STRATEJİLERİ: CİNSİYET, BİLİŞSEL DEĞERLENDİRME SÜREÇLERİ, AKADEMİK ÖZ-YETERLİK VE SINAV KAYGISININ ROLÜ

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Bu çalışmanın amacı, bilişsel değerlendirme yöntemleri, akademik öz-yeterlik, sınav kaygısı ve cinsiyetin, sekinci sınıf öğrencilerinin sınav sırasındaki duygu düzenleme stratejileri üzerindeki rolünü araştırmaktır. Çalışmanın örneklemini, 778 sekinci sınıf öğrencisi (398 kız, 380 erkek) oluşturmuştur. Kullanılan veri toplama araçları Sınav Sırasındaki Duyguları Düzenleme Stratejileri Ölçeği (Schutz, Distefano, Benson ve Davis, 2004); Akademik Duygular Ölçeği'nin Kaygı alt boyutu, (Pekrun, Goetz, Titz ve Perry, 2002); ve Akademik Öz-yeterlik Ölçeğidir (Jerusalem ve Schwarzer, 1981).

Sınav Sırasındaki Duygu Düzenleme Stratejileri Ölçeği, Akademik Öz-yeterlik ve Akademik Duygular Ölçeği'nin Kaygı alt boyutu için doğrulayıcı faktör analizi kullanılmıştır. Cronbach alfa değeri sınav kaygısı için .85 ve akademik öz-yeterlik için .76 olarak belirlenmiştir. Sınav Sırasındaki Duygu Düzenleme Stratejileri Ölçeği alt boyutları için .58 ile .75 arasında değişmektedir.

Cinsiyet, bilişsel değerlendirme yöntemleri (amaca uygunluk, ajans ve sınavlarda karşılaşılan problemleri çözebilme yeterliği), akademik öz-yeterlik ve sınav kaygısı değişkenlerinin sınav sırasındaki duygu düzenleme stratejileri (problem odaklı strateji kullanımı, gerilim azaltma, kendini suçlama ve ümit etme) üzerindeki rolünü incelemek için, dört ayrı hiyerarşik çoklu regresyon analizleri kullanılmıştır. Tüm strateji kullanımları için, yordayıcı değişkenlerin çoğu istatistiksel olarak anlamlı bulunmuştur. Tüm yordayıcı değişkenler içerisinde, sınav kaygısı en anlamlı yordayıcı olarak bulumuştur. Kız öğrenciler, erkek öğrencilere göre duygu düzenleme stratejilerini daha çok kullanmaktadırlar.

Anahtar Kelimeler: Duygu Düzenleme Stratejileri, Bilişsel Değerlendirme Süreçleri, Akademik Öz-yeterlik, Sınav Kaygısı, Cinsiyet.

To my supervisor: Assist. Prof. Dr. Yeşim ÇAPA AYDIN

&

To my family: My mother, Latife Güçlü;
My father, Mustafa Kuday Güçlü;
My sister, Dr. H. Zeynep Güçlü Kılbaş;
My brother-in-law, Dr. Zafer Kılbaş;
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CHAPTER I

INTRODUCTION

Chapter one introduces the reader to the main problem of this study. The chapter begins by providing the reader with background information of the study and statement of the problem. This chapter also includes research questions followed by the significance of the problem investigated in this study. Finally, the chapter ends with the definition of terms.

1.1. Background to the Study

Test taking is a major part of a student's life (Schutz, Distefano, Benson, & Davis, 2004). Turkish students in middle school have to be successful in both classroom exams at school and in nationwide exams for high school acceptance. Considering the impact of nationwide exams for students' life, high school entrance exams tend to be more important in students' life than classroom exams.

The secondary education placement exam (formerly named as LGS then as OKS in Turkish language) determines the future of eighth grade students by assessing their accumulation of academic knowledge in 120 minutes with a 100 multiple-choice question test. These placement exams were held annually by the Turkish Ministry of National Education (MoNE). Subject matters assessed were Turkish, Mathematics, Science, and Social Studies (MoNE, 2008). In 2007, MoNE introduced a new testing program for selection of students for secondary school education. The new placement examination (called SBS in Turkish language) was said to be aimed to reduce the amount of stress put on students. Rather than administering the exam only once, this exam is administrated three times – at the end of sixth, seventh, and eighth

grades. The selection criteria include average score on these three exams, school subject grades, and a behavior score. MoNE claimed that the new exam system encourages students to take part in social activities and reduces the need for off-school lectures provided by private schools (MoNE, 2008). Still, for students who desire a better education and have planned their career beforehand, the SBS is as important as the university entrance exam. The number of sixth grade students entering the SBS in the year 2008 was 992.240, the number of seventh grade students was 991.655, and the number of eighth grade students was 905.930. These figures show how important the SBS is for students.

Comparatively, in the United States, students take proficiency exams at elementary and secondary school level. Similar to national exams in Turkey, these exams are considered as high stakes tests, as they are norm-referenced tests used to compare and rank individuals, schools, or national system (Chapman & Snyder, 2000). Schutz, Davis, and Schwanenflugel (2002) proposed that undesired emotions are stimulated related to high- stakes testing such as anger, frustration, and anxiety in many students. The effects of undesired emotions can lead to "substantial underestimation of an individual's ability and reduced access to educational and occupational opportunities" (Spielberger & Vagg, 1995, p. xiii). Pekrun, Goetz, Perry, Kramer, Hochstadt, and Molfenter (2004) also emphasized the influence of exams in students' life by stating:

> Exams are events which can be anticipated and recalled, implying that they can induce both prospective and retrospective emotions. The anticipation of an exam can create any range of subjective probabilities, as well as positive versus negative values of its expected course and outcome, thus being able to generate positive and negative emotions involving differing degrees of subjective certainty (such as hope versus anticipatory joy, and anxiety versus hopelessness). (p. 288)

Emotions, particularly in the process of test-taking, have been a worldwide concern of many researchers. Among positive and negative emotions, "test anxiety" has been studied commonly since the 1950s. Test anxiety is defined as negative or unpleasant feelings experienced in evaluative situations regarding threat of failing an exam and the associated negative consequences (Zeidner, 1998). Such emotions can be experienced at any time before, during, or after test taking. Test anxiety was found to have significant influence on educational success. A study in Turkey, which involved 4711 students, showed that students preparing for the university entrance exam had a higher anxiety than patients before surgery (Baltaş & Baltaş, 1998). Most of the psychological and educational literature on test anxiety in Turkey is based on research done on the university entrance exam (Börü, 2000; Çankaya, 1997; Ekşi, 1998; Karakelle, 1995; Lüle, 2002; Önen, 2003; Özdemir, 2002). Nevertheless, few studies exist on the high school entrance exams (Kayapınar, 2006; Ünal, 2006; Yıldırım, Gençtanırım, Yalçın, & Baydan, 2008).

Despite the prevalent literature about test anxiety, there are a few studies investigating emotional regulation strategies students' use during test taking. However, these strategies would help one control emotions. Cicchetti, Ganiban, and Barnett (1991) defined emotional regulation as "the intra and extra organismic factors by which emotional arousal is redirected, controlled, modulated, and modified to enable an individual to function adaptively" (p. 15). Schutz, Distefano, Benson and Davis (2004) proposed that emotion regulation during test taking has three dimensions: cognitive appraising processes, task-focusing processes, and emotion-focusing processes. Considering these three dimensions, Schutz, and Davis (2000) developed a new instrument called "Emotion Regulation during Test-taking Scale." Development of this instrument has started a new line of research in the test-taking literature (e.g., Çapa Aydın & Emmioğlu, 2008; Decuir-Gunby, Aultman, & Schutz, 2009; Schutz, Benson, & Decuir-Gunby, 2008; Schutz, Davis, & Schwanenflugel, 2002). Some of these studies were correlational in

nature, while some utilized experimental design. In the present correlational study, academic self-efficacy was investigated as a predictor. Academic self-efficacy was defined as the belief in one's ability to perform academic tasks successfully including succeeding in exams. During the last decade, research on student self-efficacy has received increased attention in the area of academic motivation and achievement (Pintrich & Schunk, 2002). In the research of emotion and self regulation during test taking, Schutz and Davis (2000) reported a negative relationship between self efficacy and test anxiety. In addition, they suggested that by using different emotion regulation strategies students can change their appraisals and that their low self efficacy can turn into high self efficacy. In this way, anxiety will not occur. Considering the relevant literature, it seems worthwhile to examine emotional regulation strategies during test taking and their relationship with test anxiety and academic self efficacy.

1.2. Purpose of the Study

The aim of this study was to examine the role of test anxiety, academic self efficacy, and cognitive appraisal processes in predicting eighth grade students' emotion regulation strategies (task focused, tension reduction, wishful thinking, and self blame) during test taking. In addition, gender was included as a predictor in the study.

1.3. Research Questions

The research questions addressed in the current study were:

1. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in eighth grade students' task focusing strategies?

2. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in eighth grade students' tension reduction strategies?

3. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in eighth grade students' wishful thinking strategies?

4. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in eighth grade students' self blaming strategies?

1.4. Significance of the Study

Burns (2004) stated that exams can have remarkable impacts on students if their test performance will determine their placement to a school or repetition of a course. As both classroom tests and nationwide tests at every grade are administered in Turkey, negative emotions like test anxiety becomes a common issue in our education system. To date, most research in the area of test taking has focused on what occurs before or after the test (Scherer, Drumheller, & Owens, 1994). The studies of students' attempts to regulate emotions during test taking are limited because of a variety of methodological and ethical constraints. However, this is where the actual test taking occurs, it is important to investigate how students regulate their emotions during test taking. Findings are essential for practitioners as they can help students become wiser in test taking. Teachers can teach students to use regulatory strategies during test taking in order to control negative feelings about tests and test taking process. Decuir-Gunby et al. (2009) suggested that test-taking

strategies should be taught in a developmental approach starting from elementary school through college.

The present study not only examined the emotion regulation strategies that students used, but also the predictors of emotion regulation strategies (gender, test anxiety, and academic self efficacy). By knowing the predictors of emotion regulation strategies, practitioners may find effective means for increasing the use of emotion regulation strategies effectively. For instance, it is predicted that academic self-efficacy would positively predict emotion regulation strategies. Finding an empirical support for this proposition would guide practitioners to focus on more positive perceptions – that is, academic self-efficacy. If students believe in their capabilities, they may change their appraisal process that would lead to better means of coping with emotions.

In addition to the practical significance, the present study may be useful in terms of testing the Emotion Regulation during Test-taking (ERT) scale with a different level of students. The ERT scale was administered to high school students in previous studies, (Schutz et al., 2002; Çapa Aydın & Emmioğlu, 2008), while administered to eighth graders in the present study. Thus, findings would provide validation evidence for appropriateness of the ERT scale for younger students.

1.5. Definition of the Terms

Emotion. "The affective aspect of consciousness, a state of feeling, a psychic and psychical reaction (as anger or fear) subjectively experienced as strong feeling and physiological involving changes that prepare the body for immediate vigorous action" (Merriam, 1984, p.407).

Emotion regulation. "A theoretical conceptualization of physiological, behavioral, and cognitive processes that enable individuals to modulate the

experience and expression of positive and negative emotions". (Bridges, Denham, & Ganiban, 2004, p. 340).

Test Anxiety. "The set of physiological and behavioral responses that come with concern about possible negative consequences or failure of an evaluative situation"(Zeidner, 1998, p.17).

Academic Self Efficacy. **"**Personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performances" (Bandura, 1997; as cited in Zimmerman, 1995, p. 203).

Cognitive Appraisal Processes. "A process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well being" (Folkman, Lazarus, Gruen, & DeLongis, 1986, p.572).

Goal Congruence. Individuals' appraisal of whether the situation brings the individual closer to the goal or away from it.

Testing Problem Efficacy. *"*The judgments students make about their ability to manage the problems that emerge during the test" (Davis, DiStefano, & Schutz, 2008, p.944).

Agency. *"*The extent to which students appraises the outcome of a particular test as being under their control" (Davis, DiStefano, & Schutz, 2008, p.944).

Emotion-focusing Processes. The type of regulation which involves a shift in individuals' focus from the task to themselves and the emotions related to task.

Wishful thinking. This strategy involves thoughts like hoping the problem goes away or hoping the teacher will not count the test.

Self blame. This strategy involves individuals' criticizing themselves about their handling of the test or their preparation for the test.

Task- focusing Processes. The type of regulation to maintain individuals' focus on the task.

Task-focused Strategy. This strategy helps to keep individuals focused on the test and away from the potentially disruptive negative thoughts.

Tension Reduction. This strategy helps to regain task focus, such as trying to slow down breathing or taking a minute to stop and stretch.

CHAPTER II

REVIEW OF LITERATURE

This chapter presents the related literature regarding the major variables and their relationships.

2.1. Emotion

There is a lack of consensus in the definition of emotion (Frijda, 1988; Lazarus, 1991). In earlier research studies, emotion is defined as "the affective aspect of consciousness, a state of feeling, a psychic and psychical reaction (as anger or fear) subjectively experienced as strong feeling and physiological involving changes that prepare the body for immediate vigorous action" (Webster , 1984, p.407). Later, researchers conceptualize emotion as emerged from not only conscious but also unconscious judgments, as depicted in the definition by Schutz, Hong, Cross, and Osbon (2006):

> Socially constructers, personally enacted ways of being that emerge from conscious and / or unconscious judgments regarding perceived successes at attaining goals or maintaining standards or beliefs during transactions as part of social-historical context. (p. 344).

Emotions compose an essential part of our lives. What we have done, what we are doing, and what we will do are all affected by emotions. Therefore, emotion process deserves careful attention (Lazarus, 1991). Goals, standards, and beliefs play an essential role for discussing the nature of emotions in education, because they particularly goals are considered to guide students' thoughts and attempts (Schutz & Davis, 2000; Schutz et al, 2002). Thus, they cause emotions to appear such as, anxiety, hope, and anger. Since the 1950s, researchers have been concerned with only test anxiety. Students' academic

emotions were disregarded except for Weiner's (1980) attribution research on achievement emotions. Between the years 1970 to 2000, most studies are related to the test anxiety as seen in Table 2.1. On the other hand, there are relatively few studies regarding other negative emotions like anger and positive emotions like joy, hope, and pride (Pekrun, Goetz, & Titz, 2002).

Table 2.1

Literature Search 1974- 2000: Studies Linking Emotions to Learning and Achievement

Emotion	1974-1990	1991-2000	Research Tradition
Joy	32	29	Mood research
Hope	0	9	Teacher enthusiasm
Anger	31	33	Type A personality
Anxiety	> 700	> 500	Test Anxiety

Source: Adapted from Pekrun, Goetz, Titz, & Perry, 2002, p. 92.

2.1.1. Test Anxiety

Anxiety has been defined as a complex phenomenon that is obtained by psychological stress which includes cognitive, emotional, behavioral, and physiological dimensions (Emmelkamp, Bouman, & Scholing, 1992; Philips, Martin, & Meyers, 1969; Sarason, 1984). Zeidner (1998) describes test anxiety as "the set of physiological and behavioral responses that come with concern about possible negative consequences or failure of an evaluative situation"(p.17). Test anxiety is typically evoked in educational settings when a student believes that his or her intellectual, motivational, and social capabilities are exceeded by demands needed to succeed in the test situation.

Beginning studies of test anxiety extend to the 1914s. Based on earlier theories of test anxiety, Mandler and Sarason (1952) developed an instrument called "Test Anxiety Questionnaire" to measure adults' individual differences in test

anxiety. In the following years, many other instruments were developed such as “Test Anxiety Scale for Children” (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960), and “Test Anxiety Inventory” (Spielberger, 1980). Using these scales, many research studies have been conducted. There are many reasons to study test anxiety. Pekrun et al. (2002) indicated that test anxiety is an important predictor of achievement, motivation, and academic self-concept. Particularly for students, test anxiety interferes with their ability to perform well during tests (Meijer, 2001). In other words, anxious students tend not to show their optimal performance in a testing environment because of confounding effects of anxiety.

However, it must be noted that there have been different explanations of how test anxiety works. Some theorists have explained test anxiety-performance relationship through *interference* perspective, while others have explained through *deficit* perspective (Cizek & Burg, 2006). According to interference perspective, anxiety appears as a function of worry and emotionality. Anxious students tend to have task-irrelevant thoughts and are preoccupied with worry, self-criticism, and somatic concerns during testing that interfere their test performance (Wine, 1971). In other words, test anxious people have to divide their attention during testing between worry and the task. As a difficult task requires full attention, they perform poorly. Low test anxious students, on the other hand, focus on only task-relevant thoughts. Hence, they become successful.

Deficit perspective suggests that test anxiety impacts performance because test takers are deficit in study or test taking skills (Zeidner, 1998). Anxious students tend to lack the ability to concentrate during the test and utilize inappropriate problem solving strategies (Kutlu & Bozkurt, 2003).

Considering the literature on test anxiety, Spielberger and Vagg (1995) proposed a “transactional model.” Later, Zeidner (1998) proposed an

integrative transactional model of test anxiety (See Figure 2.1). In these models, test anxiety is considered as interaction of various elements including beliefs, behaviors, and responses. All of these elements are in a "dynamic and continuous process" (Zeidner, 1998, p. 20).

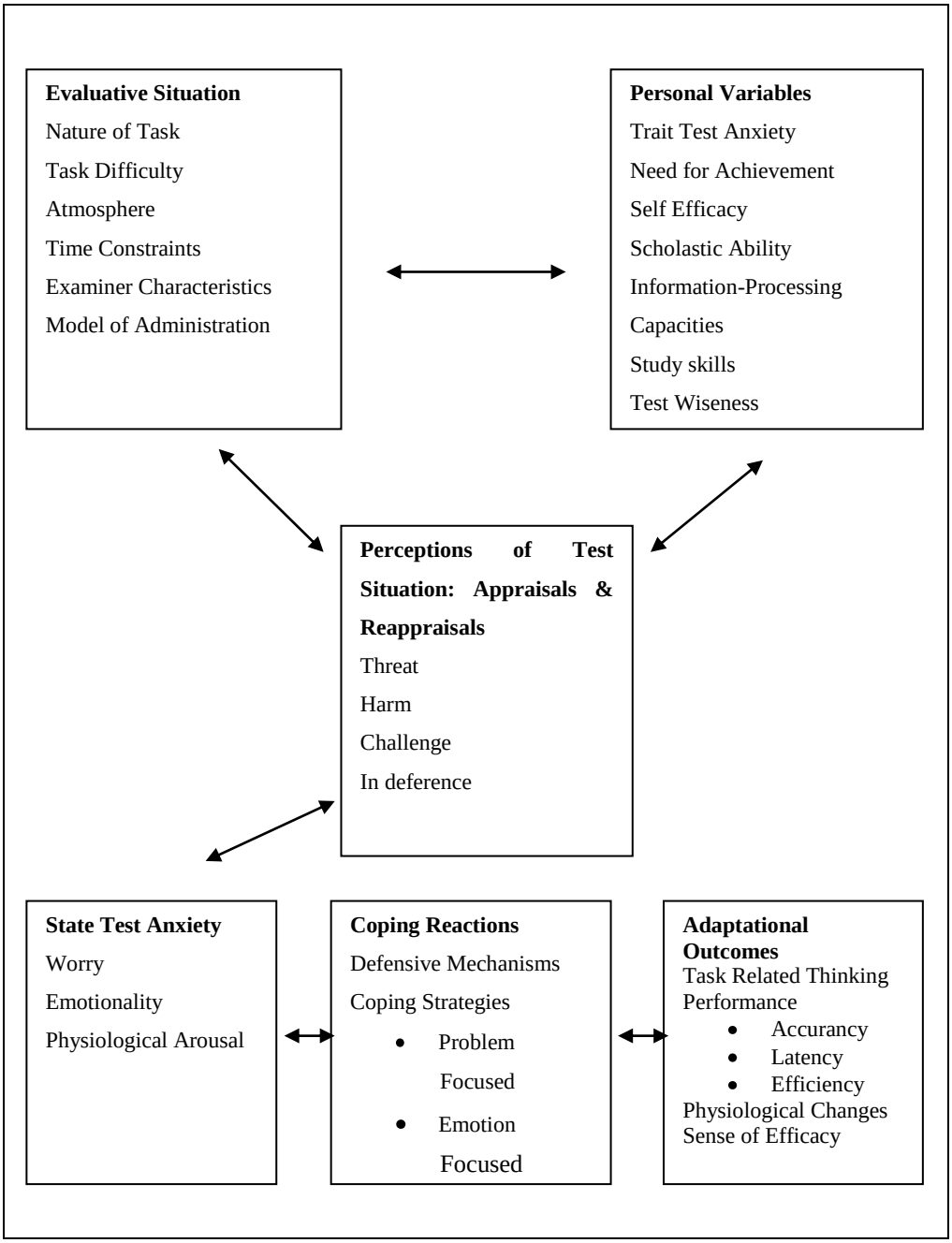

Figure 2.1. Transactional model of test anxiety.

Source: From Zeidner, 1998, p.19.

2.1.2. Research on Test Anxiety

Using different frameworks (i.e., interference, deficit or transactional), many studies have been conducted, particularly on the relationship between test anxiety and academic performance. For example, Hunsley (1985) conducted a study in which students completed test anxiety measures two weeks prior to the exam. Their findings indicated that anxious students got lower exam scores than their non-anxious counterparts. Similarly, Hembree (1988) reported that test anxiety leads to lower academic performance. Students with higher levels of test anxiety demonstrated lower academic achievement. More recently, Hancock (2001) and Sansgiry, Bhosle and Dutta (2005) reported a negative relationship between test anxiety and academic achievement. In addition, Chapell et al. (2005) compared GPA scores of students according to the differences in their level of test anxiety. They constructed three levels of anxiety (high, medium, and low). Chapell and his colleagues reported significant differences in their academic performance; as anxiety increases, academic performance (as measured by GPA) decreases. Moreover, their study was consistent with the related literature (Carter, Williams, & Silverman, 2008; Cizek & Burg, 2006; Hembree, 1988; Payne, Smith, & Payne, 1983) indicating that female students have higher test anxiety than male students.

Plass and Hill (1986), studying with primary school students, examined the combined role of test anxiety, gender, and time pressure in student performance. Their findings indicated that students with lower test anxiety performed significantly better in time-limited tests, while there was no difference between test takers' performance when the test had no time limits. Moreover, there was a significant interaction effect between gender and time pressure. Male students' performance increased when the test was not timed, whereas female students' performance did not vary. As can be seen, this study

indicates the significant impacts of test anxiety on students' performance and that time pressure is a significant factor in testing.

Furthermore, some researchers focused on the study skills of students. For instance, Culler and Holahan (1980) conducted a study examining the relationships among study skills, test anxiety, and academic performance. They found that test anxiety was a significant predictor of GPA. High test anxious students were reported to spend more time on studying in all phases of the course. Culler and Hollahan suggested that test anxious students tend to spent more time on studying to compensate for their not using proper study skills. This finding was consistent with the Wittmaier's study (1972). On the other hand, Culler and Hollahan (1980) also reported that test-anxious students who use proper study skills performed more successfully than those with bad study skills. This finding contradicts with the prevalent stereotype of test anxious students, who know the subject matter but petrify test situations.

Considering the relationship between test anxiety and academic performance, researchers have designed intervention studies to reduce test anxiety. Ergene (2003) performed meta-analysis synthesizing findings of test anxiety reduction programs. Skill-focussed approaches combined with behavior or cognitive approaches were found to be the most effective intervention programs. On the other hand, Ergene (2003) stated that few studies exist about test anxiety reduction programs for elementary and secondary school students.

2.1.3 Test Anxiety Studies in Turkey

There are lots of studies about test anxiety in our country, as well. Tuğlacı (1990) examined the relationship between test anxiety and test performance among university students in Izmir. Consistent with the international literature, results indicated that there was a negative correlation between test anxiety and achievement. In other words, as anxiety associated with test increases, the

performance decreases. Furthermore, test anxiety scores of female students were generally higher than those of the males. With respect to gender differences, Yerin (2003) and Aydın (1993) found similar results. Yerin worked with elementary, junior high, and high school students. Yıldırım, Gençtanırım, Yalçın, and Baydan (2008) examined the relationship between test anxiety, academic achievement, and gender among high school students. They found that gender was a significant variable in predicting test anxiety and those female students have higher levels of test anxiety than males.

Similar pattern of test anxiety – academic performance has been observed at every grade level. Koçkar, Kılıç and Şener (2002) reported that students with high test anxiety scores had lower academic success. Kayapınar (2006) and Ünal (2006) examined test anxiety of eighth graders with respect to the secondary education placement exam (OKS in Turkish language). Kayapınar (2006) reported a significant relationship between test anxiety, gender, age, and students' test performance. Similarly, Ünal (2006) reported a significant relationship between test anxiety, self-esteem, gender, and stress level of the 8th graders.

Another study was conducted by Çankaya (1997) who investigated the relationships between self-esteem, test anxiety, and academic achievement. Results indicated that self-esteem was negatively correlated with test anxiety levels of the students. Interestingly, results did not show a significant relationship between academic achievement and test anxiety levels of students.

In conclusion, studies indicated that test anxiety is negatively related with self-esteem and with academic achievement. Moreover, many studies showed that females have higher levels of test anxiety than males. These findings are parallel with the international literature.

2.2. Emotion Regulation and Emotion Regulation during Test-taking Strategies

Despite of many studies about test anxiety and emotions in testing, few studies have appeared about emotion regulation during test taking. Thompson (1994, p. 27) states that "emotion regulation consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goal." As can be seen in the definition, regulation of emotions depends on the accessibility our goals. Goals enable students to decide how successful they see themselves in their attempt to reach their goals and sustain their standards and belief during activities (Frijda & Mesquita, 1994; Lazarus, 1991; Schutz et al., 2006).

Schutz et al., (2002) indicated that if the students are in a situation which is not related to their goal, students may change their thoughts and avoid their attempts. Anger, depression, or anxiety may be occurring at this time. Therefore, emotion regulation becomes an important part of this process and influence the success of those goal directed attempts (Schutz & Davis, 2000). Moreover, Schutz et al. (2004) indicate that students' emotions can only be controlled while taking tests as long as they change their appraisals about test taking. In other words, if students view tests as important, emotional experiences are more likely to occur (Schutz, Davis, & Schwanenflugel, 2002). Smith (1991) also emphasizes that a test is the key element in the field of emotion and emotion regulation during test taking. To sum up, it can be seen that one's emotions can change depending on his or her appraisal of the test (Figure 2.2).

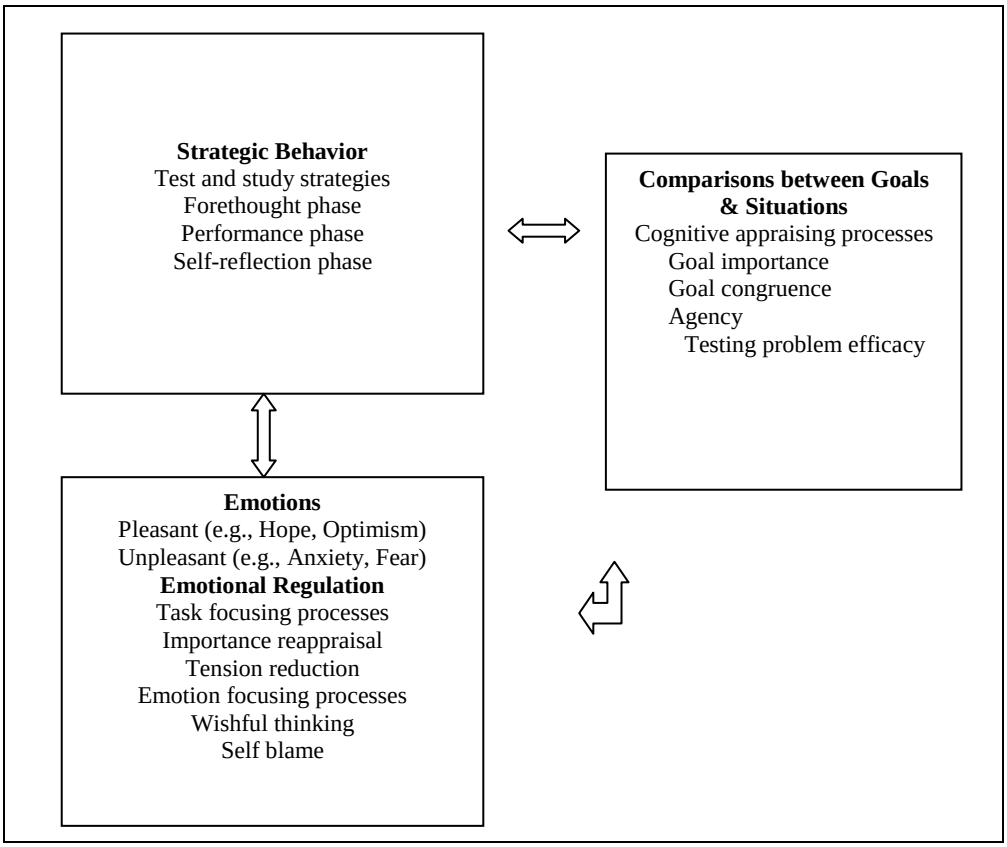

Figure 2.2. Emotional regulation during test taking

Source. From Schutz, P. A., & Davis, H. A., 2000, p. 247.

Within the context of test taking, emotion regulation is defined in three dimensions: (a) Cognitive appraising processes, (b) Task focusing processes, (c) Emotion focusing processes (Schutz et al., 2004).

2.2.1. Cognitive-Appraisal Processes

Schutz, Distefano, Benson, and Davis, (2004) indicate that emotions and their regulations begin with thoughts related to goals, standards, and beliefs. These thoughts, judgments or appraisals make an important distinction between primary (positive or negative significance of an event for one's well being)

and secondary appraisals (the ability to cope with the consequences of an event) according to Lazarus (1991).

In primary appraisal, the person decides whether the situation has an effect on him/her (Folkman, Lazarus, Gruen, & DeLongis, 1986). If the situation is in relation to him/her, s/he makes a secondary appraisal. Furthermore, primary appraisal has three features. The first feature is goal relevance; that is student evaluates whether or not the event is relevant to the goal. If it is relevant, emotion will occur. The second characteristic is goal congruence that is student evaluates whether the event is moving towards a goal or away from the goal. If congruent with the goal, positive emotions appear; if not, negative ones appear. The last one is ego involment; that is how much student's "ego" or "identity" is involved. For example, if the event involves self esteem, then pride will be occur or if it involves lack of self esteem, anger may be appear (Figure 2.3).

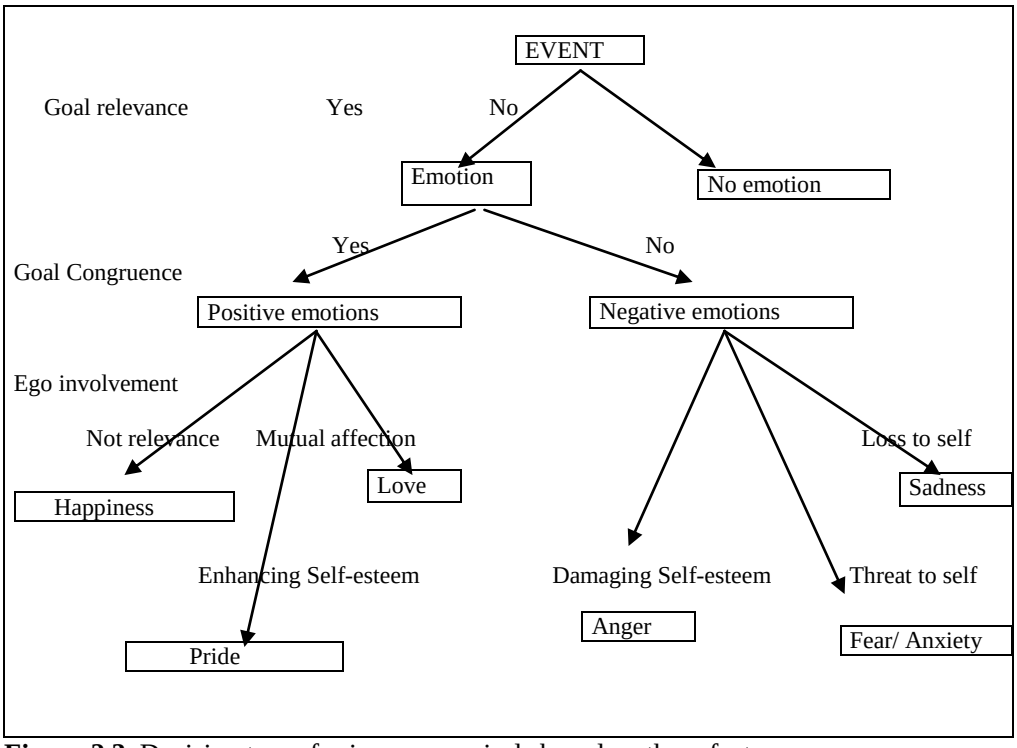

Figure 2.3. Decision tree of primary appraisals based on three features.

Source: From Oatley, and Jenkins, 1996, p. 101.

On the other hand, the secondary appraisal involves judgments students make about their capacity to cope with the situation. The key secondary appraisals involve agency and problem efficacy (Schutz & Davis 2000). These secondary appraisals (e.g., agency) are needed to specify distinctions about which emotions will occur within goal-congruent and goal-incongruent emotions. For example, the judgment of who is in control or who caused what is going on during the event will influence the emotional experience of the person. A potential question for agency is: "Do I perceive myself as being in control during this test?" If student appraise the test as goal relevant, not going well, and blames someone else, the person will most likely feel anger. However, if student evaluates the test to be goal relevant, not going well, and blames himself, the person will most likely feel guilt (Smith, 1991; Smith & Ellsworth, 1985). The decision of whom or what is in control during the test will influence the person's emotional experience and the regulation of that experience.

Another form of secondary appraisal is problem efficacy or the potential to deal with any problem that occurs during the event. Within the field of test taking, the question for this appraisal would be: "Can I handle what will occur during the test?" The motivation literature refers to this as "expectancy" (Eccles, 1983; Wigfield & Eccles, 1992) or "self-efficacy" (Bandura, 1997). It has been suggested that anxiety tends to appear if students have low efficacy, in other words if they do not believe in their ability to deal with the problems during tests (Davis, DiStefano, & Schutz, 2006).

The literature portrays a lot of research indicating the relationship between emotions and cognitive appraisals. Smith and Ellsworth (1985), for instance, have found that there are significant connections between fifteen different emotions and six cognitive appraisal dimensions. In this experiment, they analyzed the relationship between happiness, unhappiness, fear, anger, discomfort, bravado, interest, hope, frustration, abasement, disgust,

astonishment, pride, shame and guilt; and six cognitive appraisal dimensions: amenity, responsibility/control, attention activity, effort and situational control and concluded that people's emotions are related to how people appraise their own environment. Similarly, Roseman, Spindel, and Jose (1990) studied whether different cognitive appraisals reveal different emotions. Their findings indicated that different appraisals reveal 16 different emotions. Positive emotions are coherent with individuals needs, whereas negative emotions are incoherent.

2.2.2. Task-Focusing Processes

In addition to emotional regulation that occurs over time, regulation can also occur within the context of the test situation. One form of emotion regulation during an event is task-focusing process (Carver, Scheier, & Weintraub, 1989; Endler & Parker, 1990; Lazarus, 1991; Lazarus & Folkman, 1984).

The key element of regulation within this dimension is trying to gain and keep or regain task focus. In other words, the main reason is to keep the focus on the task through internal talk. Within the field of test-taking, research has identified three categories of task-focusing processes that could be used for emotional regulation during test taking (Schutz et al., 2004): The first one involves task-focusing strategies during test taking, like managing our time or looking for the main idea in a question may help to keep students focused on the test and away from the potentially disruptive negative thoughts about themselves. The second one, called tension reduction attempts, are used during the test. For example, trying to slow down breathing or taking a minute to stop and stretch may help to regain task focus. The last one, importance reappraisal processes, involves attempts to keep the importance of the test in perspective or to emphasize the positive aspects of the test. All of these strategies are considered to facilitate focus or refocus on the test.

2.2.3. Emotion Focusing Processes

The third aspect of emotion regulation involves emotion focusing processes during the test (Carver, 1989, Endler & Parker, 1990; Lazarus, 1991; Lazarus & Folkman, 1984). Within the field of test taking, two key emotion-focused processes were suggested: wishful-thinking, which includes thoughts like hoping the negative or undesired situations will end or hoping the teacher will cancel the test; and self-blame, which includes thoughts like self-criticism about handling of the test or preparation for the test.

Self talk during a test that involves self-blame about how we should have studied more or different material will tend to facilitate an increase in test anxiety. Moreover, the length of the emotion focusing process also affects the emotions. Student might say to himself or herself, “I am so stupid, I should have studied a lot longer for this test” and then follow up by saying, “Well, I’ll make the best of it and get back to the test.” The second statement may help focusing back to the test. If self-critical appraisals continue like, “I’m going to blow this test and get a terrible grade for this class,” test-anxiety will raise and cause a bad outcome for the test (Schutz et al., 2002, p. 320).

2.2.4. Emotion Regulation during Test Taking (ERT) Scale

Test taking is being a major part of a student’s life (Schutz, Distefano, Benson, & Davis, 2004). Besides that, testing provokes difficult emotions such as anger, frustration, and anxiety. Thus, understanding the nature of test taking, test anxiety, and emotion regulation during tests becomes the most important issue in education (Schutz, Davis, & Schwanenflugel, 2002). In fact, investigating the area of education by taking an emotional perspective has increased in the last decade (Pekrun, Goetz, Titz, & Perry, 2002; Schutz & Davis, 2000; Schutz, Hong, Cross, & Osbon, 2006).

Schutz et al. (2008) put forward that testing measures have recently become a primary source of determining a students' academic situation and there are many factors that influence students' achievement during test taking. Moreover, students' experiences display emotions such as anger, fear, challenge, anxiety, pride, hope. These emotions influence students' thoughts about how successful they see themselves to reach their goals. To prevent the negative impacts of this situation, emotion regulation strategies have great importance at this point (Schutz et al., 2004). Unfortunately, to date, most research has focused on what occurs before or after the test (Scherer, Drumheller, & Owens, 1994). Because of the ethical and methodological limitations, these studies have been avoided to examine students' attempts to regulate emotions *during* test taking; but, this is where the actual test taking occurs. Consequently, investigating this part of the test taking process is very essential. With this purpose, Schutz et al. (2004) developed the Emotional Regulation during Test Taking Scale (ERT).

Schutz et al. (2004) defined emotional regulation during test taking as involving four dimensions: (1) Cognitive appraisal processes; (2) Task focusing processes; (3) Emotion- focusing processes; and (4) Regaining task-focusing processes. In Schutz, Benson, and Decuir's study (2008), the ERT dimensions explained 56 % of the variance in pleasant emotions and 87 % of the variance in unpleasant test emotions. In conclusion, these results indicate that how students appraise their emotions about testing while being tested. In addition to that, how the strategies they use during the test can influence or change their emotions in testing.

2.2.5. Research on Emotion Regulation Strategies

Since 1950s, test anxiety has been investigated many times, whereas there is a notable lack of empirical research on students' emotions (Pekrun, Goetz, Preckel, & Hall, 2007). Students' state emotions were experienced in

academic area, such as during test taking and exams. Researchers focused on test anxiety many times, however less is known about emotions during test taking (Schutz & Davis, 2000). Moreover, there is not a lot of study on the emotions occur parallel to the parts of the tests. Pekrun et al. (2007) identified that students experience emotions not only before or after the test, but also during the performance phase of the achievement test.

In a study of test anxiety, Galassi, Frierson, and Sharer (1981) indicated that students' negative emotions are the highest at the beginning of the test. Similarly, Pekrun et al. (2004) also reported that greater negative emotions, such as test anxiety, hopelessness, sadness, and disappointment were reported more before the test. Furthermore, Pekrun et al. (2004) also indicated that students' positive emotions, such as joy, pride, relief, admiration, and feeling security were reported most frequently after the exam.

Schutz, Davis, Schwanenflugel, and Axelrod (1998) reported that high test anxious students saw their feelings as a challenge, and they blame themselves. In addition to this, there was a little difference between the high and low test anxious students who were using task focusing strategies. Similarly, in the literature, test anxiety relates positively to higher emotion focus (trying to control anxiety) and greater avoidance (trying not to think of the test), but not to lower task-focus (focusing effort on task performance). Schutz, Davis, and, Schwanenflugel (2002) investigated students' conceptual organization of emotions and their regulation. Moreover, they aimed to assess whether there was a common or a different organizational scheme among seventyeight undergraduate students while they are taking a test. Their findings indicated that high test anxious students did not make a distinction between pleasantness and unpleasantness from the regulation activities related to the task of taking a test. Moreover, high test anxious students combined pleasantness and the task focusing strategies, while they are taking tests. Similarly, Kondo (1997) found that high test anxious students used more strategies than low test anxious ones

when asked to describe specific tactics that they used to cope with anxiety. Furthermore, having to use task focused strategies such as “analyzing questions” or “checking answers” can be a clue for feeling anxious.

Deffenbacher (1978) investigated how students who are test anxious reacted to the test situations. This study indicated that “high anxiety students spent less time on the test, experienced greater interaction from anxiety, reported greater attention to worried thoughts, and experienced heightened physiological arousal and task generated interference” (p.248). In addition, Schutz and Davis (2000) emphasized the importance of cognitive appraisal processes for the test taking situation. When students perceive the test as essential and have self-confidence in the competence to cope with any problem, the ideal cognitive appraisal may occur.

Davis, Reiss, Distefano, and Schutz (2006) investigated test anxiety, anger, and pride among high school students (9th and 10th grade) and their emotion regulation during test taking. They examined these variables by grade level and gender as well. Grade level has a significant relationship with anxiety. Ninth graders reported higher levels of test anxiety, while tenth graders reported higher ability to control the problems. Moreover, there is a significant difference in students’ emotions by gender. Girls have a higher level anxiety and pride than boys. Girls also reported significantly higher wishful thinking, whereas boys reported significantly higher scores on agency, self blame, and problem efficacy.

Schutz, Davis, and Distefano, (2008) explored patterns of appraising tests of 1st-year college students. Findings indicated that students who reported using lower rate of task-focusing and regaining-task-focusing regulation strategies were paired with the highest rates of emotion-focusing strategies. Another finding showed that students who perceive themselves as in control are more likely to select task-oriented strategies. Students used more task focusing

strategies in comparison to emotion-focused strategies, when faced with problems during a test. Moreover, students who have higher levels of test anxiety used more wishful thinking strategies than task focusing and tension reduction.

Despite international literature on emotional regulation during test taking, only one study has appeared in Turkey. Çapa Aydın and Emmioğlu (2008) adapted the ERT scale to Turkish and worked with high school students (9th and 10th grades). In addition, they were interested in whether or not test anxiety would be predicted by emotional regulation strategies. Findings indicated that testing problem efficacy, task-focusing strategies, importance reappraisal, wishful thinking and self blaming were significant predictors of test anxiety. Testing problem efficacy had a significant negative relationship with test anxiety. As can be inferred, students who had higher testing problem efficacy had lower test anxiety. Furthermore, the more students used task focused strategies, importance reappraisal, wishful thinking, and self blame, the higher the test anxiety level is. In addition, Çapa Aydın and Emmioğlu (2008) found that there is a significant relationship between gender and test anxiety. Females were found to have higher test anxiety than males.

2.3. Academic Self-Efficacy

Bandura (1986), self-efficacy is defined “people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Bandura (1997) also defined “perceived self-efficacy as people’s beliefs in their capabilities to produce given attainments” (p.3). It has been suggested that a high self efficacy improves a person’s achievement and welfare. Efficacious people see difficult tasks as challenging rather than seeing them as threats to be avoided. They quickly recover their sense of efficacy after failures and setbacks (Bandura,

1997). Similarly, Boekaerts (1993) suggested that low self efficacy causes mostly unpleasant emotions.

According to Bandura (1986, 1997) there are four main sources for developing sense of self-efficacy: enactive mastery experiences, vicarious experiences, verbal persuasion, and physiological reactions.

Enactive Mastery Experiences: A person's belief about his/her capability regarding a situation depends on the experience the person had. If the prior experience was positive, the person's self-efficacy will be high during the next situation. If the next experience is also positive, self-efficacy of the person will be strengthened. After a series of positive experiences and heightened self-efficacy, temporary negative experiences will have little effect on the person's self-efficacy. On the other hand, if a person encounters a series of negative experiences, the person's self-efficacy will be lowered with each negative experience.

Vicarious Experiences: Seeing other people succeed will stimulate a person to believe in himself/herself and thus increase his/her self-efficacy. The person will model the succeeding person and this information may increase one's self-efficacy. For example in a classroom, a student sees himself equal to other students. In a test, if everyone is doing well, the student will consider that he may also be capable of handling the test. But if everyone is doing poorly, the student will start doubting himself and his self-efficacy will drop. Through modeling, seeing other people similar to oneself succeed will increase a persons' self-efficacy.

Verbal persuasion: For a person, the thoughts of other people about himself/herself are very important. If most people around a person believe the person will be successful in a situation, the person will start believing in himself/herself. The self-efficacy of a person is raised by verbal persuasion of

the people surrounding him/her. However, people do not always think of the good of others. Negative verbal persuasion obtained from people around a person will stimulate doubt and lower the person's self-efficacy.

Physiological reactions: Heightened physiological arousals such as sweating, increased heartbeats, and mood changes inform people and influence their efficacy assessment (Bandura, 1986, 1997).

2.3.1. Research on Academic Self-Efficacy

The belief of being successful in an exam is determined by the academic self efficacy of a person. In recent years, research studies about student self-efficacy have gained greater attention in the area of academic motivation and achievement (Pintrich & Schunk, 2002). In fact, these studies underscore the fact that academic achievement is increased by academic self-efficacy (Bandura 1997; Pajares 1997; Schunk 1982, 1981). For example, Vrugt, Langereis, and Hoogstraten (1997) found that academic self-efficacy has a significant effect on test performance. In addition, Lent, Broun, and Larkin (1984) indicated that high academic achievers also have high examination marks. Academic self-efficacy was found to be an important predictor for the predicting students' achievement (Elias & Loomis, 2002; House, 1992; Wood & Locke, 1987).

In a study on junior high school students (Bassi, Steca, Delle Fave & Caprara, 2007), researchers found that efficacious students placed significantly more importance on academic attainments than students with low level of self-efficacy. Moreover, efficacious students reported significantly positive values of concentration and goals. In other words, they perceive the long-term importance of studying.

The predicting power of self-efficacy beliefs and academic goals in ninth and tenth grade students' self-motivated academic attainment were examined by Zimmerman, Bandura, and Martinez-Pons (1992). Results indicated that academic goals set by students and their final academic achievement were significantly predicted by their perceived self-efficacy for academic achievement, which was affected by beliefs in their efficacy for self-regulated learning. Pintrich and De Groot (1990) indicated that there is a correlation between global academic self- efficacy and both cognitive strategy use and self-regulation through use of metacognitive strategies. In addition, academic self-efficacy was found to be correlated with academic performances such as grades, in-class seat work, homework, exams, and quizzes.

In this study, "Academic self-efficacy scale" that was adapted by Yılmaz, Gürçay, and Ekici (2007), was used as a data collection instrument. Results showed that generally pre-service primary school teachers have a high level of academic self-efficacy. They believe that with sufficient exam preparation, they will be successful. This study also indicated a positive correlation between self-efficacy and age. In other words, students' efficacy increased as their age increased.

In the research of emotion and self regulation during test taking, Schutz and Davis (2000) reported a relationship between self efficacy and emotion regulation. Researchers put forward that low self efficacy appraisal causes test anxiety during test taking situations. In addition to this, they emphasized that by using different emotion regulation strategies students can change their appraisals and that their low self efficacy can turn into high self efficacy. In this way, anxiety will not occur.

2.4. Summary

Considering the findings above, it can be concluded that is considerable consistency among studies investigating the variables of cognitive appraisal processes, academic efficacy, and test anxiety in relation to variables of emotion regulation strategies. Besides, few of them directly measure the relationship between these variables and many of them studied with high school students. Therefore, this research also aims to investigate elementary school students' emotion regulation strategies in testing.

CHAPTER III

METHOD

This chapter consists of seven sections regarding the methodological details of the study. The first section presents the overall design of the study. The second section presents research questions. The third section describes the participants of the study. The fourth section explains the data collection instruments. In the fifth section, pilot study is presented. Next, in the sixth section, the data collection procedure is explained. Then, in the seventh section, variables of the study are introduced. The eighth section, data analyses conducted are given. Finally, limitations of the study are presented in ninth section.

3.1. Research Design

The overall design of the study was correlational. Correlational research describes an existing relationship between variables without any attempt to influence them (Fraenkel & Wallen, 2006). The purpose of the present study was to investigate the role of gender, test anxiety, academic self efficacy, and cognitive appraisal processes (goal congruence, agency, and testing problem efficacy) in predicting eighth grade students' emotion regulation strategies during test taking.

Emotion Regulation during Test Taking Scale (ERT) developed by Schutz, Distefano, Benson and Davis (2004), anxiety subscale of Academic Emotions Questionnaire (AEQ) developed by Pekrun, Goetz, Titz, and Perry (2002), and Perceived Academic Self-Efficacy Scale (ASE) developed by Jerusalem and Schwarzer (1981) were administered to 778 eighth grade students in schools of Çankaya and Yenimahalle district in Ankara.

3.2. Research Questions

Research questions addressed in this study were:

1. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in students' task focusing strategies?
2. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in students' tension reduction strategies?
3. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in students' wishful thinking strategies?
4. How well do gender, cognitive appraisal processes (agency, testing problem efficacy, and goal congruence), academic self efficacy, and test anxiety predict the variation in students' self blaming strategies?

3.3. Participants

The participants of the study were volunteered 778 eighth grade students (398 females and 380 males) in 17 schools of Çankaya and Yenimahalle district in Ankara. Out of these participants, 577 were from eleven of the schools in the Çankaya district and 201 were from six schools located in Yenimahalle district.

3.4. Data Collection Instruments

The data were gathered with the following instruments: Emotion Regulation during Test Taking Scale (ERT) (Schutz et al., 2004), Anxiety subscale of

Academic Emotions Questionnaire (AEQ) (Pekrun et al., 2002), and Academic Self-Efficacy Scale (ASE) (Jerusalem & Schwarzer, 1981).

3.4.1. Emotion Regulation during Test Taking Scale (ERT)

The Emotion Regulation during Test Taking Scale (ERT) was developed by Schutz, Distefano, Benson and Davis (2004). The ERT was adapted to Turkish by Çapa Aydın and Emmioğlu (2008). The ERT included 39 items on a 5-point scale with anchor points labeled: Almost Never (1), rarely (2), sometimes (3), usually (4), and almost always (5). This scale was developed to measure three major dimensions of emotion regulation: Cognitive Appraising Processes, Task Focusing Processes, and Emotion Focusing Processes.

3.4.1.1. Cognitive-Appraising Processes

The Cognitive- Appraising Processes dimension of the ERT has three subscales: Goal Congruence, Agency, and Testing Problem Efficacy.

Goal Congruence (4 items). Items on this scale were designed to capture students' judgments about the importance of tests toward accomplishing students' goals. A sample item reads "My test grades are helping me reach my career goals." Schutz et al. (2004) reported a reliability coefficient of α =.61, while Çapa Aydın and Emmioğlu (2008) reported α = .63

Agency (4 items). Items on this scale were designed to capture students' judgments about their abilities to control the outcomes of tests (e.g., "I control how well I perform on a test."). Schutz et al. (2004) reported a reliability estimate of α=.85. Çapa Aydın and Emmioğlu (2008) calculated a reliability estimate of α=.75.

Problem Efficacy (4 items). Items on this scale were designed capture students' judgments about their confidence in their ability to control the problems on the test or change their emotional experience (e.g., "I can usually figure out how to answer difficult questions."). Schutz et al. (2004) reported a reliability estimate of α =.79. Çapa Aydın and Emmioğlu (2008) calculated a reliability estimate of α =.70

3.4.1.2. Task-Focusing and Regaining Task-Focus Processes

The Task- Focusing and Regaining Task- Focus Processes dimension of the ERT has three subscales: Task focusing Processes, Tension Reduction, and Importance Reappraisal.

Task-Focusing Processes (4 items). Items on this scale were designed to capture students' attempts to keep concentrated on the test and away from potentially disruptive thoughts about themselves (e.g., "When I have problems on tests, I try to reword the questions."). Schutz et al. (2004) reported a reliability estimate of α = .57, whereas Çapa Aydın and Emmioğlu (2008) reported α =.50

Tension Reduction (4 items). Items on the tension reduction scale were designed to capture students' attempts to relieve the physiological symptoms of stress students may experience while taking tests (e.g., "When I have problems during tests, I try to clear my head."). Schutz et al. (2004) reported reliability estimates of *α* =.77 for tension reduction, whereas Çapa Aydın and Emmioğlu (2008) reported α =. 63

Importance Reappraisal (5 items). Items on the importance reappraisal subscale were designed to capture students' attempts to get back on task by

attempting to reduce their tension or put the test in perspective. A sample item read "When i have problems during tests, I try to keep the test's importance in perspective with other things in my life." Schutz et al. (2004) reported a reliability estimate of α =.72 for importance reappraisal, whereas Çapa Aydın and Emmioğlu (2008) calculated a reliability estimate of α =.50

3.4.1.3. Emotion-Focusing Processes

The Emotion- Focusing Processes dimension of the ERT has two subscales*:* Wishful Thinking and Self-Blame.

Wishful Thinking (4 items). Items on the wishful thinking scale attempt to capture students' attempts to disengage from the task (e.g., "When I have problems during tests, I hope a miracle will occur."). Schutz et al. (2004) reported a reliability estimate of α =.77 for wishful thinking. Çapa Aydın and Emmioğlu (2008) calculated a reliability estimate of α = .54

Self –Blame (4 Items). Items on the self blame subscale were designed to assess students' attempts to focusing on the feelings and thoughts related to their performance. A sample item read "When I have a problem during tests, I lecture myself about how I should have studied differently." Schutz et al. (2004) reported a reliability estimate of α =.86, whereas Çapa Aydın and Emmioğlu (2008) reported α = .61.

3.4.2. Anxiety subscale of Academic Emotions Questionnaire (AEQ)

Academic Emotions Questionnaire (AEQ) was developed by Pekrun, Goetz, Titz, and Perry (2002). Only anxiety subscale of this questionnaire was used for this study. The anxiety subscale of AEQ consists of 8 items and is

unidimensional. The AEQ uses a likert type answer format with five options labeled “Almost Never” (1), “Rarely” (2), “Sometimes” (3), “Usually” (4), and “Almost Always” (5). Cronbach’s alpha reliability value of this subscale was found to be .92 (Pekrun et al., 2002). In the research of High School Students’ Emotions and Emotion Regulation during Test Taking, Davis et al. (2005) used 9th and 10th grade high school students and found reliability estimates of .86 for anxiety. Anxiety dimension of Academic Emotions Questionnaire (AEQ) was adapted to Turkish by Çapa Aydın and Emmioğlu (2008). They reported a reliability estimate of .87 for anxiety dimension of AEQ.

3.4.3. Academic Self-Efficacy Scale (ASE)

The General Self-Efficacy Scale (GSE) scale was originally developed in German by Jerusalem and Schwarzer in 1979. After that, GSE revised and adapted to 26 other language by various coauthors in 1981. In the same year, Jerusalem and Schwarzer reported that criterion related validity is documented in numerous correlational studies, where positive coefficients were found with favorable emotions like dispositional optimism and work satisfaction. Negative coefficients were found with depression anxiety, stress burnout, and health complaints. The GSE is unidimensional, and consists of 7 items. The GSE used a likert type answer format with four options labeled “Completely Disagree” (1), “Disagree” (2), “Agree” (3), “Completely Agree” (4). Its internal consistencies found that between alpha = .75.

Later, an academic version of the GSE was developed and alpha coefficient was computted on the sample of the tasks. This new scale was purported to measure academic self-efficacy. The coefficient alpha was found to be .85 (Jerusalem & Schwarzer, 1981). Academic Self-Efficacy scale was adapted by Yılmaz, Gürçay, and Ekici (2007). Cronbach alpha reliability value of the scale was found to be .79. Results of the factor analysis indicated that the

Turkish version of the ASE scale with seven items is unidimensional, like the original version.

3.5. Pilot Study

The purpose of the pilot study was to investigate whether the instrument was working properly for the eighth grade students. Five private dershanes were selected from the Çankaya district of Ankara. The instrument was administered to 189 eighth grade students. Ninety of them (%44.3) were female and 99 of them (%48.8) were male.

Before running the factor analysis, assumptions of the EFA (correlation matrix, KMO test and Barlett test of sphericity) were checked. Kaiser Meyer Olkin (KMO) and Bartlett's test of sphericity were examined to evaluate the appropriateness of the data to the factor analysis. KMO value must be .6 and above and Bartlett's test should be significant (Tabachnick & Fidell, 2007). KMO value of .72 indicated that it is a meritorious result; we could conduct a reliable factor analysis. As expected, χ^2 (1128) =2670.787, p <.01 so Bartlett's test shows that there are correlation among items.

Maximum likelihood was chosen as the estimation procedure because the data were approximately normally distributed. Tabachnick and Fidell (2001) states "maximum likelihood estimation estimates population values for factor loadings by calculating loadings that maximize the probability of sampling the observed correlation matrix from a population" (p.613). Thus, it is the best choice for the data analysis with alpha level of .05.

To retain the number of factors, eigenvalues greater than one and scree plot were used to have substantial amounts of common variance. To enhance the interpretability of the factor-loading matrix by simplifying the data structure, factors were rotated. Oblique rotation (direct oblimin) was used because it

allows the factors to correlate. To understand how many factors can be identified, scree plot and eigenvalue exceeding 1 criterion were used. Based on eigenvalues greater than one criterion, three factors are available in the instrument. These factors explain 66.20 % of the variance. Scree plot (see Figure 3.1) demonstrates that the break point, which the curve begins to straighten, is the fifth eigenvalue point. Thus, the number of the eigenvalues above the break point is three. Thus, three factors were retained.

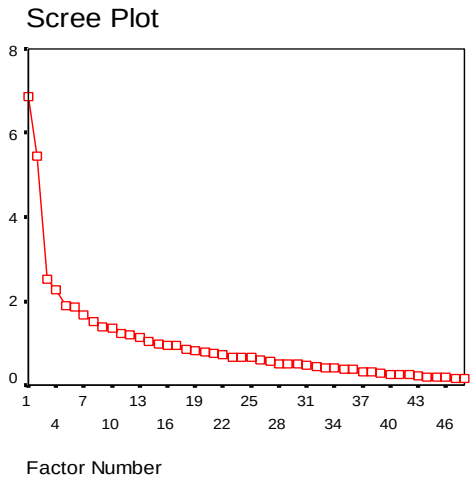

Figure 3.1. Scree plot based on the pilot data

It was found that the reliability of whole scale was .83; the reliabilities of subscales were .86 for test anxiety, .72 for academic self efficacy, .70 for the cognitive appraisal processes (goal congruence, agency, and testing problem efficacy), .68 for the task focusing processes (task focusing, tension reduction, and importance reappraisal), .72 for the emotion focusing processes (wishful thinking and self blame). As a result, no changes were made for the instrument.

3.6. Data Collection Procedure

A set of three scales (ERT, AEQ, and ASE) and a demographic data form were used to collect data. Before collecting data, first permission from the

Ethics Committee of Middle East Technical University was taken in order to conduct the research study. The committee examined the proposal of the study in terms of its purpose, significance, method, and measures that were going to be administered to the volunteered participants together with informed consent forms. After having approval from the committee, second permission from the Ministry of National Education was taken.

After having approval from the Ministry of National Education, eighth grade students, were randomly selected from 194 schools in the districts of Çankaya and Yenimahalle. The scale was administered to the volunteered students after the purpose and significance of the study were explained by the researcher. Then, scales were given. Participants completed the scales approximately in 15 minutes.

3.7. Variables

The dependent variables of this study were task focusing processes (task focusing and tension reduction) and emotion focusing processes (wishful thinking and self blame). Independent variables were gender, cognitive appraisal processes (goal congruence, agency, and testing problem efficacy), academic self efficacy, and test anxiety.

Gender. A dichotomous variable with categories of (1) Female and (2) Male.

Goal Congruence. The mean score as measured by the Emotion Regulation during Test Taking Scale (ERT). High score indicates that students' judgments about their grades are helping them to reach their academic goals.

Agency. The mean score as measured by the Emotion Regulation during Test Taking Scale (ERT). High score indicates high level of students' control on their performance in the test.

Testing Problem Efficacy. The mean score as measured by the Emotion Regulation during Test Taking Scale (ERT). High score shows that students' confidence about their ability to control the problems that occur during the test.

Academic Self-efficacy.. The mean score as measured by the Academic Self-Efficacy Scale (ASE). High score indicates high level of students' academic self efficacy.

Test Anxiety. The mean score as measured by the Academic Emotions Questionnaire (AEQ). High score indicates high level of students' test anxiety.

Task- focusing Processes. The mean score as measured by the Emotion Regulation during Test Taking Scale (ERT). High score shows students'high concentration level.

Tension Reduction. The mean score as measured by the Emotion Regulation during Test Taking Scale (ERT). High score indicates high level of students' relief.

Wishful Thinking. The mean score as measured by the Emotion Regulation during Test Taking Scale (ERT). High score indicates that students' high level use of wishful thinking strategies.

Self-blame. The mean score as measured by the Emotion Regulation during Test Taking Scale (ERT). High score shows that high level of blaming themselves.

3.8. Data Analyses

Before inferential statistics, confirmatory factor analyses (CFA) were conducted for the ERT scale, the ASE scale, and anxiety subscale of AEQ. CFA was conducted on the 33 items of the ERT scale to test the eight factor structure. For the ASE scale and anxiety subscale, one-factor structure was tested. These analyses were performed using Analysis of Moment Structures 4.0 (AMOS; Arbuckle & Wothke, 1999). Model fit was evaluated using the chi-square statistic, comparative fit index (CFI), and root-mean square error of approximation (RMSEA), and non-normed fit index (also called Tucker-Lewis Index) (NNFI). Chi-square statistics are heavily influenced by sample size (Kline, 2005), and therefore, CFI and RMSEA are better estimates of fit in a large sample (Bentler, 2007). CFI and NNFI values greater than .95 are indicative of acceptable fit (Hu & Bentler, 1999). The RMSEA values up to .05 indicate good fit, between .06 and .08 indicate adequate fit, and >.10 indicate poor fit (Hu & Bentler, 1999; Kline, 2005). In addition, in order to evaluate the internal consistency of the each scale, Cronbach's alpha coefficients were calculated.

To explore the correlations among the study variables, Pearson's two-tailed correlation analysis was conducted. Before hierarchical multiple regression analysis, assumptions were checked. For normality of residuals, histogram and normal P-P plot of the residuals were examined. In addition, univariate normality was checked. For homoscedasticity, scatterplot was examined. In order to check for multicollinearity, VIF (variance inflation factor) and tolerance values were examined. Four separate hierarchical multiple regression analyses were performed to explore the relationship between gender, cognitive appraisal processes, academic self efficacy, and test anxiety in predicting four different emotion regulation strategies: task-focusing, tension reduction, wishful thinking, and self-blame. All of the analyses were conducted using the SPSS.

3.9. Limitations of the Study

This study has several limitations in terms of generalizability and interpretations of the expected findings:

A convenient sampling method was used. Thus, the results by no means represent all the students preparing for Level Determination Exam (SBS) in Turkey, especially the ones who are not attending a particular preparation course.

Additionally, emotion regulation strategies, self efficacy, and test anxiety were assessed by self-report scales and they reflected the perceived levels of related constructs.

CHAPTER IV

RESULTS

The results of the statistical analyses are presented in this chapter. The main goal of the present study was to explore the role of gender, cognitive appraisal processes, academic self efficacy, and test anxiety in predicting emotion regulation strategies of eighth grade students in Ankara. With this aim, in the first section of this chapter, preliminary analyses and findings of factor analysis are given. In the second section, the results of the hierarchical multiple regression analyses are reported.

4.1. Preliminary Analysis

Prior to the main analyses, the accuracy of data entry, the presence of missing data, and distributions of all variables were examined. Tabachnick and Fidell (2007) suggested that the missing data is a significant problem, particularly when the amount of missing data exceeds 5%. In the present study, less than 5 % was missing so no item or case was excluded from the dataset. The default method (list wise deletion method) for missing data was used.

4.2. Descriptive Statistics

Descriptive statistics were used to describe the predictor variables consisting of cognitive appraisal processes, academic self efficacy, test anxiety, and the outcome variables including emotion regulation strategies. Means, standard deviations, and minimum- maximum scores for each variable were summarized in Table 4.1.

Mean scores of test anxiety and academic self-efficacy indicated that students had relatively low test anxiety while had high level of academic self efficacy. In addition, among the cognitive appraisal processes, agency (*M*=4.1, *SD*=.82) and goal congruence (*M*=4.1, *SD*=.85) had the highest mean values showing that students tend to believe their test scores were helping them to accomplish their goals and tend to keep the test's importance in perspective with other things in their life, respectively.

As it is also seen, Task focusing (*M*=3.5, *SD*=.78) strategies were more used by the participants. These findings showed that students used task focusing strategies, such as, managing their time or looking for the main idea in a question. On the other hand, wishful thinking (*M*=3.1, *SD*=.92), importance reappraisal (*M*=3.0, *SD*=.84), and self blame (*M*=3.0, *SD*=.86) strategies were relatively less used. As a result, we can understand that students were not criticizing themselves about their handling of the test or do not have wishful thinking (e.g., hoping the teacher will not count the test).

Table 4.1

Descriptive Statistics for Emotion Regulation Strategies, Test Anxiety, Cognitive Appraisal Processes, and Academic Self Efficacy (N = 778)

Variables	*M*	*SD*	Min	Max
Test Anxiety	2.4	.86	1	5
Academic Self-efficacy	2.9	.54	1	4
Cognitive appraisal processes				
Goal Congruence	4.1	.85	1	5
Agency	4.1	.82	1	5
Testing problem efficacy	3.4	.91	1	5
Task-focusing strategy				
Task Focusing	3.5	.78	1	5
Tension Reduction	3.2	.89	1	5
Important Reappraisal	3.0	.84	1	5
Emotion-focusing strategy				
Wishful Thinking	3.1	.92	1	5
Self Blame	3.0	.86	1	5

4.3. Validity

Construct validity in this study was tested using Confirmatory Factor Analysis.

4.3.1. Confirmatory Factor Analysis of Emotion Regulation during Test taking Scale

Confirmatory Factor Analysis (CFA) was conducted on the 33 items to test the eight factor structure of Emotion Regulation during Test taking (ERT) scale as suggested by Schutz, Distefano, Benson, and Davis (2006). This analysis was performed using Analysis of Moment Structures 4.0 (AMOS; Arbuckle & Wothke, 1999). Model fit was evaluated using the chi-square statistic, comparative fit index (CFI), and root-mean square error of approximation (RMSEA), and non-normed fit index (NNFI). Chi-square statistics are heavily influenced by sample size (Kline, 2005), and therefore, CFI, NNFI, and RMSEA are better estimates of fit particularly in large samples (Bentler, 2007). CFI and NNFI values greater than .95 are indicative of acceptable fit (Hu & Bentler, 1999). The RMSEA values up to .05 indicate good fit, between .06 and .08 indicate adequate fit, and >.10 indicate poor fit (Browne & Cudek, 1993; Hu & Bentler, 1999; Kline, 2005).

The first run of CFA, however, resulted in a non-admissible solution for the eight factor structure of ERT. The factor “importance reappraisal” was not functioning; therefore, this factor was removed from the scale. The second CFA was performed to test seven factor structure of the ERT.

Figure 4.1 presents the measurement model for the seven-factor ERT scale. The fit for this model was: $\chi 2$ (356) = 1218.39, $p < .01$, RMSEA = .056, CFI =.98, NNFI = .98. All indices indicated a good fit for the seven-factor structure of the scale. In addition, all of the factor loadings were significant and higher than .30 (Hair, Anderson, Tatham, & Black, 2006). Factor loadings ranged

from .54 to .62 for the Goal congruence factor, from .45 to .64 for the Agency factor, from .63 to .70 for the Testing problem efficacy factor, from .36 to .55 for the Task focusing factor, from .41 to .62 for Tension reduction factor, from .45 to .59 for Wishful thinking factor, and from .47 to .54 for Self blame factor.

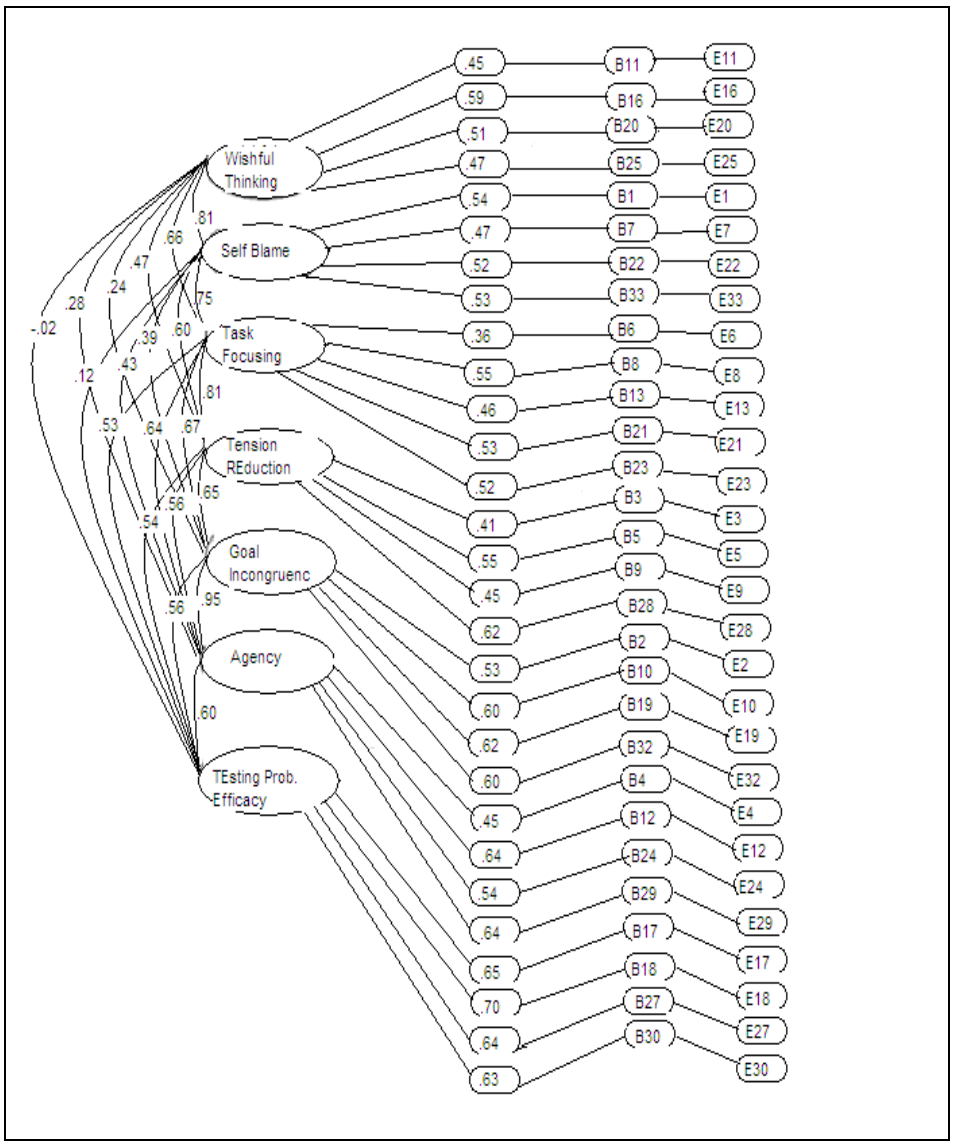

Figure 4.1. Confirmatory Factor Analysis of the ERT Scale

4.3.2. Confirmatory Factor Analysis of the Test Anxiety Scale

Confirmatory factor analysis (CFA) was conducted on the 8 items to test the one factor structure of the anxiety subscale of Academic Emotions Questionnaire (AEQ). This analysis was performed using Analysis of Moment Structures 4.0 (AMOS; Arbuckle & Wothke, 1999).

The first run of CFA resulted in following fit indices: $\chi 2$ (20) = 219.599, $p < .001$, RMSEA = .11, CFI =.98, NNFI = .97.), which indicated poor fit (MacCallum, Browne, & Sugawara, 1996). Therefore, researchers checked the modification indices (i.e., error covariance) of errors, and detected the ones with high values, i.e., most striking values among all (Arbuckle, 1999). The pairs with high error covariances were e1- e4, e6 -e7. Then, related error pairs were connected in the model and analysis was run again. After this change, despite its significance, chi-square statistics resulted in a decrease to 95.53. Considering the influence of sample size on chi-square statistics, other indices were evaluated. RMSEA value decreased to .07 and this value indicated mediocre fit (MacCallum et al., 1996). In addition, resulting NNFI (.94) and CFI (.96) values supported good fitting model due to being higher than .95 (Hu & Bentler, 1999). All indices indicated a good fit for the one-factor structure of the scale. In addition, all of the factor loadings were significant and higher than .30 (Hair et al., 2006). Factor loadings ranged from .51 to .74.

4.3.3. Confirmatory Factor Analysis of the Academic Self-Efficacy Scale

Confirmatory factor analysis (CFA) was conducted on the 6 items to test the one factor structure of the Academic Self-Efficacy Scale (ASE). This analysis was performed using Analysis of Moment Structures 4.0 (AMOS; Arbuckle & Wothke, 1999). The fit statistics based on the first run of CFA were: $\chi 2$ (9) = 66.83, $p < .001$, RMSEA = .09, CFI =.99, NNFI = .99.) and this indicated poor fit (MacCallum et al., 1996). Therefore, researchers checked the modification

indices (i.e., error covariance) of errors, and detected the ones with highest values among all (Arbuckle, 1999). The pair with high error covariances was e2- e3. Then, related error pair was connected in the model and analysis was run again. After this change, chi-square statistics decreased to 48,802, though it is still statistically significant ($p<.001$). RMSEA value decreased to .08 and this value indicated mediocre fit (MacCallum et al., 1996). In addition, resulting NNFI (.99) and CFI (.99) values supported good fitting model due to being higher than .95 (Hu & Bentler, 1999). All indices indicated a good fit for the one-factor structure of the scale. In addition, all of the factor loadings were significant and higher than .30 (Hair et al., 2006). Factor loadings ranged from .51 to .66.

4.4. Reliability Analyses

Findings of reliability estimates for three scales and subscales by using Cronbach's alpha are presented in the Table 4.2. Cronbach's alpha coefficients were .85 for Test Anxiety Scale. Alpha value was .76 for Academic Self Efficacy Scale with item 7 included. However, based on the item-total correlation, item 7 was not functioning properly, consistent with the finding of factor analysis. Therefore, alpha coefficient was re-estimated after item 7 was deleted and found to be .76. When the subscales of ERT scale were examined for reliability estimates, it appeared that the reliability coefficients ranged from .58 to .75. Item-total correlations were also examined to see whether there would be any improvement if an item was removed. However, all items were equally contributing.

Table 4.2

Reliability Estimates of Each Scale

Variables	α	# of the Items
Test Anxiety	.85	8
Academic Self-efficacy	.76	6
Cognitive appraisal processes		
Goal Congruence	.68	4
Agency	.65	4
Testing problem efficacy	.75	4
Task-focus. strategy		
Task Focusing	.62	5
Tension Reduction	.60	4
Emotion-focus. strategy		
Wishful Thinking	.58	4
Self Blame	.60	4

4.5. Hierarchical Regression Analyses

Tabachnick and Fidell (2007) defines hierarchical regression analysis as evaluate the if there is a relationship between independent variables and the dependent variable, controlling for or taking into account the impact of a different set of independent variables on the dependent variable. According to Field (2005), hierarchical regression is the best method that allows seeing the unique predictive influence of a new variable on the outcome, because known predictors are held constant in the model. In the first step, gender was included. In the second step, cognitive appraisal processes (goal congruence, agency, and testing problem efficacy) were added. In step three, academic self efficacy was added. Finally, in step four, test anxiety was added on these variables. Four separate hierarchical regression analyses were performed for four dependent variables: task focusing, tension reduction, wishful thinking, and self blame.

4.5.1. Predictors of Task-focusing Strategies

The research question was: "How well do gender, Cognitive Appraisals Processes, Academic Self Efficacy, and Test Anxiety predict the variation in students' Task Focusing Strategies?"

4.5.1.1. Assumptions of Hierarchical Regression Analysis

Assumptions of hierarchical regression analysis are multicollinearity, normality, linearity, homoscedasticity, and independence of residuals (Tabachnick & Fidell, 2007). Normality was tested by checking histogram and P-P plot. According to Field (2005), the distribution of residuals should be normal, whereas predictors do not need to be normally distributed in multiple regressions. The histogram revealed approximately a normal distribution. As can be seen on Figure 4.2 and 4.3, the normality assumption was satisfied.

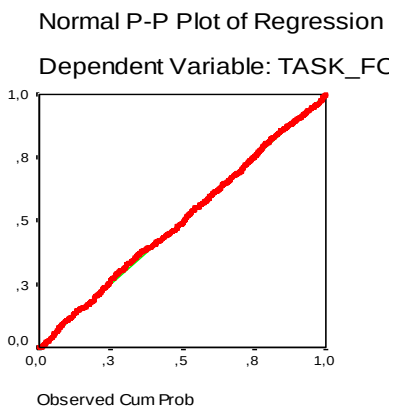

Figure 4.2. Normal Probability Plots for Task Focusing Strategies

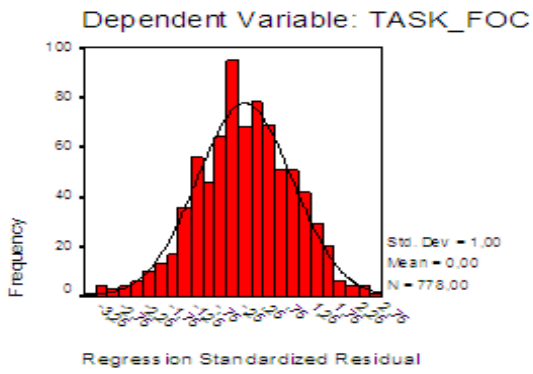

Figure 4.3. Histogram of Normality for Task Focusing Strategies

According to Tabachnick & Fidell, (2007) multicollinearity exists when there are high correlations among the independent variables (r > .90). As seen in Table 4.3, there is no multicollinearity problem.

Table 4.3

Intercorrelations among the Variables

Variable	1	2	3	4	5	6	7
Task Focusing	1.00						
Gender	-.20	1.00					
Goal Congruence	.39	-.18	1.00				
Agency	.38	-.11	.63	1.00			
Testing Problem Efficacy	.33	.01	.41	.42	1.00		
Academic Self Efficacy	.30	.05	.31	.34	.56	1.00	
Test Anxiety	.16	-.09	-.02	-.01	-.22	-.11	1.00

In addition, in order to check multicollinearity, collinearity diagnostics of VIF and tolerance statistics were examined. Table 4.4 presents the tolerance and VIF values. No value of VIF was greater than 4 and tolerance was smaller than .20 (Tabachnick & Fidell, 2007).

Table 4.4

Tolerance and VIF Values of Predictor Variables for Multicollinearity

Variables	Tolerance	VIF
Goal Congruence	.96	1.03
Agency	.98	1.01
Testing Problem Efficacy	1.000	1.000
Academic Self Efficacy	.997	1.003
Test Anxiety	.990	1.010

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. "If nonlinearity is present, the overall shape of the scatter plot is curved instead of rectangular" (Tabachnick & Fidell, 2007, p.138). Checking scatter plots, linearity assumption can be determined. The scatter plot is presented in Figure 4.4. There was no evidence for the violation of the assumption of linearity.

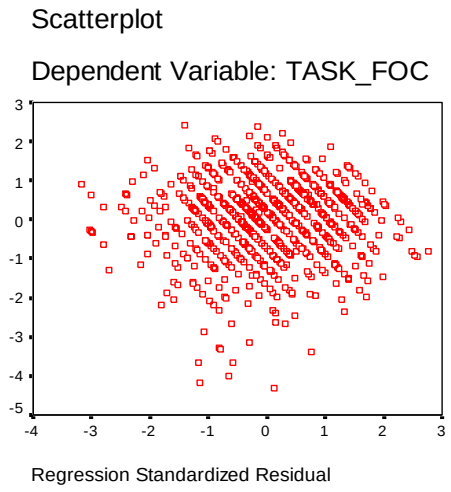

Figure 4.4. Scatter plots of Task Focusing Strategies

For testing homoscedaticity assumption, scatter plot was checked. According to Tabachnick and Fidell (2007) homoscedasticity assumption is "the assumption that the standard deviations of errors of prediciton are approximately equal for all predicted dependent variable scores" (p.127). As can be seen on Figure 4.4, the assumption was satisfied.

The last assumption was independent of residuals. To check this assumption, Durbin –Watson statistic was examined (Field, 2005). Durbin- Watson value should be close to 2 (should not be greater than 2.5 and less than 1.5) (Tabachnick & Fidell, 2007). The Durbin –Watson value was found 1.78, indicating no problem. In conclusion, these findings showed no violation of the main assumptions of multiple regression analysis.

4.5.1.2. Findings of Regression Analysis

Table 4.5 shows the findings of hierarchical regression analysis for task focusing strategies. Step 1 included demographic variables, which are gender. In step 1, when only gender is used as a predictor, gender accounts for 4.4 % of the variation in task focusing strategies, $\Delta R^2 = .044$, $\Delta F\ (1,776) = 35.40$, $p < .05$. Cognitive appraisal processes were added in step 2; $\Delta R^2 = .19$, $\Delta F\ (3,773) = 65.00$, $p < .05$. Cognitive appraisal processes (agency, goal congruence, testing problem efficacy) account for additional 19% of the variation in task focusing. After step 3, with the addition of academic self efficacy, R^2 increased to .25 ($\Delta R^2 = .01$, $\Delta F\ (1,772) = 11.08$, $p < .05$). Academic self efficacy accounts for additional 5 % of the variation in task focusing. After step 4, with the addition of Test anxiety, $\Delta R^2 = .04$, $\Delta F\ (1,771) = 45.00$ was found. Overall, the final model accounts for 29% of the variation in task focusing strategies, while test anxiety explains only 4% of the variance.

Moreover, all of the predictors were statistically significant. Unique contribution of each predictor was examined using semi-partial correlation coefficients (sr^2). For this model, test anxiety was the most powerful predictor among all the variables. In addition, testing problem efficacy had relatively higher contribution to task-focusing strategies. Overall, findings indicated that students who consider tests with respect to their goals (goal congruence), who believe they can control the outcome of the test (agency), who believe they can control the problems on the test (testing problem efficacy), who have

higher academic self efficacy, and who have test anxiety tend to use task-focusing strategies. Girls tend to use higher task-focusing strategies than boys.

Table 4.5

Results of the Hierarchical Regression Analysis for Task Focusing Strategies

Predictor Variables	R^2	*b*	*SE*	β	*t*	sr^2
Step 1	.04					
Gender		-.32	.05	-.21	-6.00*	-.04
Step 2	.24					
Gender		-.25	.05	-.16	-5.00*	-.02
Goal Congruence		.16	.03	.18	4.25*	.01
Agency		.17	.04	.18	4.23*	.01
Testing Problem Efficacy		.16	.03	.19	5.34*	.03
Step 3	.25					
Gender		-.23	.05	-.17	-5.00*	.03
Goal Congruence		.16	.04	.17	4.10*	.02
Agency		.15	.04	.16	4.00*	.02
Testing Problem Efficacy		.12	.03	.13	3.20*	.01
Academic Self Efficacy		.18	.05	.13	3.32*	.01
Step 4	.29					
Gender		-.32	.05	-.21	-4.83*	.02
Goal Congruence		.16	.03	.18	4.13*	.01
Agency		.17	.03	.17	3.50*	.01
Testing Problem Efficacy		.16	.03	.19	4.65*	.02
Academic Self Efficacy		.18	.05	.12	3.34*	.01
Test Anxiety		.19	.02	.21	6.70*	.04

Note. Dependent Variable = Task Focusing Strategies. *p < .05

4.5.2. Predictors of Tension Reduction Strategies

"How well do gender, Cognitive Appraisals Processes, Academic Self Efficacy, and Test Anxiety predict the variation in students' Tension Reduction Strategies?"

4.5.2.1. Assumptions of Hierarchical Regression Analysis

Assumptions of hierarchical regression analysis are multicollinearity, normality, linearity, homoscedasticity, and independence of residuals (Tabachnick & Fidell, 2007). Assumptions were checked before doing each hierarchical regression analysis.

Normal distribution of data was tested by checking histogram and P-P plot. According to Field (2005), the distribution of residuals should be normal, whereas predictors do not need to be normally distributed in multiple regressions. The histogram revealed approximately a normal distribution. As can be seen on figure 4.5, the normality assumption was satisfied.

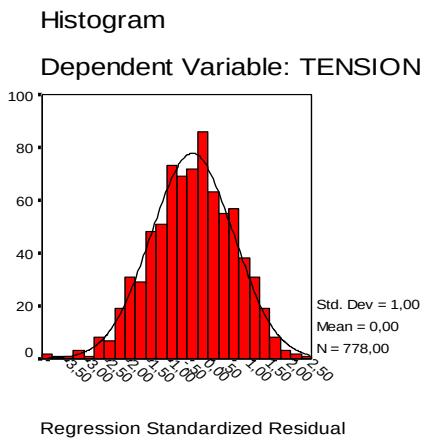

Figure 4.5. Histogram of Normality for Tension Reduction Strategies

According to Tabachnick & Fidell, (2001) multicollinearity exists when there are high correlations among the independent variables (r > .90). Table 4.6 presented intercorrelations among the variables in order to check multicollinearity assumption. Findings indicated that the assumption was satisfied.

Table 4.6

Intercorrelations among the Predictor Variables

Variable	1	2	3	4	5	6	7
Tension Reduction	1.00						
Gender	-.11	1.00					
Goal Congruence	.39	-.18	1.00				
Agency	.38	-.11	.63	1.00			
Testing Problem Efficacy	.33	.01	.41	.42	1.00		
Academic Self Efficacy	.30	.05	.31	.34	.56	1.00	
Test Anxiety	.16	-.09	-.02	-.01	-.22	-.11	1.00

In order to check multicollinearity; collinearity diagnostics of VIF and tolerance statistics revealed no values greater than 4 and smaller than .20. So, there is no multicollinearity problem. The correlation between independent variables should be less than .9 (Tabachnick & Fidell, 2007). Table 4.7 presents the tolerance and VIF values.

Table 4.7

Tolerance and VIF Values of Predictor Variables for Multicollinearity

Variables	Tolerance	VIF
Goal Congruence	.96	1.03
Agency	.98	1.01
Testing Problem Efficacy	1.00	1.00
Academic Self Efficacy	.99	1.00
Test Anxiety	.99	1.01

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. “If nonlinearity is present, the overall

shape of the scatter plot is curved instead of rectangular" (Tabachnick & Fidell, 2007, p.138). Checking scatter plots, linearity assumption can be determined. According to scatter plot on figure 4.6, which is not curved, as a result, there was no evidence for the violation of the assumption of linearity.

For testing homoscedaticity assumption, scatter plot was checked. According to Tabachnick & Fidell (2007, p.127) homoscedasticity assumption is "the assumption that the standard deviations of errors of prediction are approximately equal for all predicted dependent variable scores". As can be seen on figure 4.6, the assumption was satisfied.

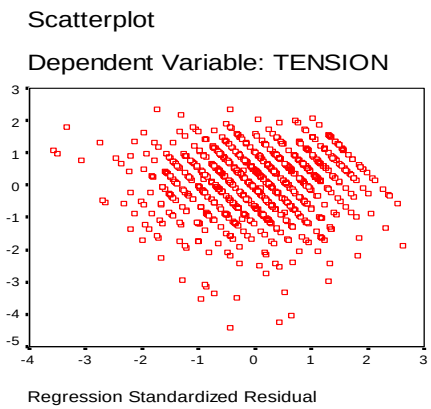

Figure 4.6. Scatter plots of Tension Reduction Strategies

To check the assumption of independent of residuals which requires errors' not being correlated, Durbin –Watson statistic was tested (Field, 2005). Durbin- Watson value should be close to 2 (should not be greater than 2.5 and less than 1.5) in order not to violate that assumption (Tabachnick & Fidell, 2001). The Durbin –Watson value was found 1.87.

In conclusion, these findings indicate no violation of the main assumptions of multiple regression analysis.

4.5.2.2. Findings of Regression Analysis

Table 4.8 shows the findings of hierarchical regression analysis for tension reduction strategies. Step 1 included demographic variables, which are gender. In step 1, when only gender is used as a predictor, gender accounts for 1 % of the variation in tension reduction strategies, $\Delta R^2 = .01$, $\Delta F (1,776) = 10.64$. Cognitive appraisal processes were added in step 2; $\Delta R^2 = .19$, $\Delta F (3,773) = 62.71$; $p < .05$. Gender and cognitive appraisal processes accounts for 20% of the variation in tension reduction. After step 3, with the addition of academic self efficacy, $\Delta R^2 = .01$, $\Delta F (1,772) = 8.09$, $p < .05$. After step 4, with the addition of Test anxiety, $\Delta R^2 = .03$, $\Delta F (1,771) = 33.83$ was found. Final model accounts for 24% of the variation in tension reduction. Goal congruence and test anxiety contributed significantly ($sr^2 = .03$).

Moreover, except agency, all of the predictors were statistically significant and positively related to tension reduction. Unique contribution of each predictor was examined using semi-partial correlation coefficients (sr^2). For this model, test anxiety was the most powerful predictor among all the variables. In addition, testing problem efficacy and goal congruence had relatively higher contribution to tension reduction strategies. Girls tend to use more tension reduction strategies than boys. In Table 4.8, b values showed that relationship between tension reduction strategies and each predictor. All predictors have positive b values indicating positive relationships. Standardized beta values provide a better insight into the importance of a predictor in the model (Field, 2008). The standardized beta value for goal congruence is .24, and .21 for testing problem efficacy. Thus, goal congruence has slightly more impact in the model.

Table 4.8

Results of the Hierarchical Regression Analysis for Tension Reduction Strategies

Predictor Variables	R^2	*b*	*SE*	β	*t*	sr^2
Step 1	.01					
Gender		-.20	.06	-.11	-3.26*	-.01
Step 2	.20					
Gender		-.12	.06	-.06	-2.03*	-.00
Goal Congruence		.26	.04	.25	6.00*	.03
Agency		.07	.05	.06	1.52	.00
Testing Problem Efficacy		.22	.03	.22	6.10*	.04
Step 3	.21					
Gender		-.13	.06	-.07	-2.26*	.00
Goal Congruence		.27	.04	.25	5.77*	.03
Agency		.06	.05	.05	1.25	.00
Testing Problem Efficacy		.16	.04	.17	4.08*	.02
Academic Self Efficacy		.18	.06	.11	2.84*	.00
Step 4	.24					
Gender		-.10	.05	-.05	-1.82*	.00
Goal Congruence		.25	.04	.24	5.83*	.03
Agency		.04	.04	.03	.89	.00
Testing Problem Efficacy		.21	.04	.21	5.32*	.02
Academic Self Efficacy		.17	.06	.11	2.84*	.00
Test Anxiety		.19	.03	.18	5.81*	.03

Note. Dependent Variable = Tension Reduction Strategies. *p < .05

4.5.3. Predictors of Wishful Thinking Strategies

"How well do gender, Cognitive Appraisals Processes, Academic Self Efficacy, and Test Anxiety predict the variation in students' Wishful Thinking Strategies?"

4.5.3.1. Assumptions of Hierarchical Regression Analysis

Assumptions of hierarchical regression analysis are multicollinearity, normality, linearity, homoscedasticity, and independence of residuals (Tabachnick & Fidell, 2007). Assumptions were checked before doing each hierarchical regression analysis.

Normal distribution of data was tested by checking histogram and P-P plot. According to Field (2005), the distribution of residuals should be normal, whereas predictors do not need to be normally distributed in multiple regressions. The histogram revealed approximately a normal distribution. As can be seen on figure 4.7, the normality assumption was satisfied.

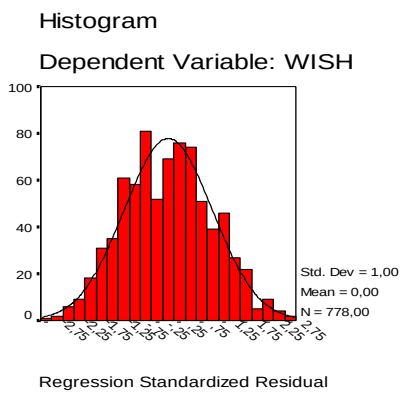

Figure 4.7. Histogram of Normality for Wishful Thinking Strategies

According to Tabachnick & Fidell, (2001) multicollinearity exists when there are high correlations among the independent variables (r > .90). In order to check multicollinearity; collinearity diagnostics of VIF and tolerance statistics revealed no values greater than 4 and smaller than .20. So, there is no multicollinearity problem. The correlation between independent variables should be less than .9 (Tabachnick & Fidell, 2007). Table 4.9 presented the tolerance and VIF values, Table 4.10, intercorrelations among the variables in order to check multicollinearity assumption. Findings indicated that the assumption was satisfied.

Table 4.9

Tolerance and VIF Values of Predictor Variables for Multicollinearity

Variables	Tolerance	VIF
Goal Incongruence	.96	1.03
Agency	.98	1.01
Testing Problem Efficacy	1.00	1.00
Academic Self Efficacy	.99	1.00
Test Anxiety	.99	1.01

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. "If nonlinearity is present, the overall shape of the scatterplot is curved instead of rectangular" (Tabachnick & Fidell, 2007, p.138). Checking scatterplots, linearity assumption can be determined. According to scatterplot on figure 4.8, which is not curved, as a result, there was no evidence for the violation of the assumption of linearity.

For testing homoscedaticity assumption, scatterplot was checked. According to Tabachnick & Fidell (2007, p.127) homoscedasticity assumption is "the assumption that the standard deviations of errors of prediciton are approximately equal for all predicted dependent variable scores". As can be seen on figure 4.8, the assumption was satisfied.

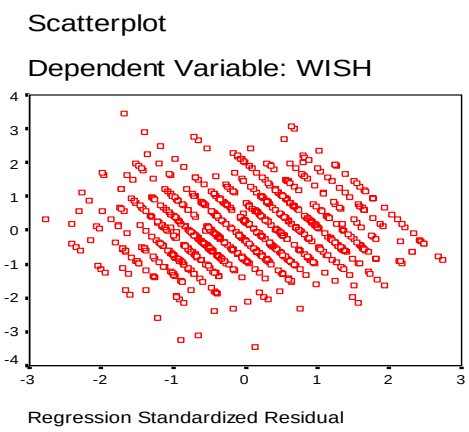

Figure 4.8. Scatterplot of Wishful Thinking Strategies

To check the assumption of independent of residuals which requires errors' not being correlated, Durbin –Watson statistic was tested (Field, 2005). Durbin- Watson value should be close to 2 (should not be greater than 2.5 and less than 1.5) in order not to violate that assumption (Tabachnick & Fidell, 2001). The Durbin –Watson value was found 1.78.

In conclusion, these findings indicate no violation of the main assumptions of multiple regression analysis.

Table 4.10

Intercorrelations among the Predictor Variables

Variable	1	2	3	4	5	6	7
Wishful Thinking	1.00						
Gender	-.11	1.00					
Goal Congruence	.39	-.18	1.00				
Agency	.38	-.11	.63	1.00			
Testing Problem Efficacy	.33	.01	.41	.42	1.00		
Academic Self Efficacy	.30	.05	.31	.34	.56	1.00	
Test Anxiety	.16	-.09	-.02	-.01	-.22	-.11	1.00

4.5.3.2. Findings of Regression Analysis

Table 4.11 shows the findings of hierarchical regression analysis for wishful thinking strategies. Step 1 included demographic variables, which are gender. In step 1, when only gender is used as a predictor, gender accounts for 1.2 % of the variation in wishful thinking strategies, $\Delta R^2 = .01$, $\Delta F\ (1,776) = 9.54$. Cognitive appraisal processes were added in step 2; $\Delta R^2 = .03$, $\Delta F\ (3,773) = 9.02$; $p < .05$. Gender and cognitive appraisal processes accounts for 4.6 % of the variation in wishful thinking. After step 3, with the addition of academic self efficacy, $\Delta R^2 = .01$ $\Delta F\ (1,772) = 12.60$, $p < .05$. After step 4, with the addition of Test anxiety, $\Delta R^2 = .16$, $\Delta F\ (1,771) = 158.31$ was found. Final model accounts for 22 % of the variation in wishful thinking. Test anxiety explains 16 % of the variance in wishful thinking. This indicates that the test anxiety is the most powerful prediction.

Except testing problem efficacy, all predictors have positive b values indicating positive relationships. Moreover, except goal congruence, all of the predictors were statistically significant. Unique contribution of each predictor was examined using semi-partial correlation coefficients (sr^2). For this model, test anxiety was the most powerful predictor among all the variables.

Table 4.11

Results of the Hierarchical Regression Analysis for Wishful Thinking Strategies

Predictor Variables	R^2	*b*	*SE*	β	*t*	sr^2
Step 1	.01					
Gender		-.20	.07	-.11	-3.10*	-.01
Step 2	.04					
Gender		-.15	.06	-.08	-2.30*	-.01
Goal Congruence		.03	.05	.03	.62	.00
Agency		.21	.05	.18	4.00*	.02
Testing Problem Efficacy		-.11	.04	.11	-2.73*	.01
Step 3	.06					
Gender		-.17	.07	-.10	-2.58*	.01
Goal Congruence		.02	.05	.02	.43	.00
Agency		.19	.05	.17	3.65*	.02
Testing Problem Efficacy		-.19	.04	-.18	-4.10*	.02
Academic Self Efficacy		.26	.07	.15	3.55*	.02
Step 4	.22					
Gender		-.11	.06	-.05	-1.80*	.00
Goal Congruence		.01	.04	.14	.33	.00
Agency		.15	.04	.13	3.16*	.01
Testing Problem Efficacy		-.07	.04	-.07	-1.68*	.00
Academic Self Efficacy		.25	.06	.14	3.75*	.01
Test Anxiety		.45	.03	.41	12.58*	.16

Note. Dependent Variable = Wishful Thinking Strategies. *p < .05

4.5.4. Predictors of Self Blaming Strategies

"How well do gender, Cognitive Appraisals Processes, Academic Self Efficacy, and Test Anxiety predict the variation in students' Self Blaming Strategies?"

4.5.4.1. Assumptions of Hierarchical Regression Analysis

Assumptions of hierarchical regression analysis are multicollinearity, normality, linearity, homoscedasticity, and independence of residuals (Tabachnick & Fidell, 2007). Assumptions were checked before doing each hierarchical regression analysis.

Normal distribution of data was tested by checking histogram and P-P plot. According to Field (2005), the distribution of residuals should be normal, whereas predictors do not need to be normally distributed in multiple regressions. The histogram revealed approximately a normal distribution. As can be seen on figure 4.9, the normality assumption was satisfied.

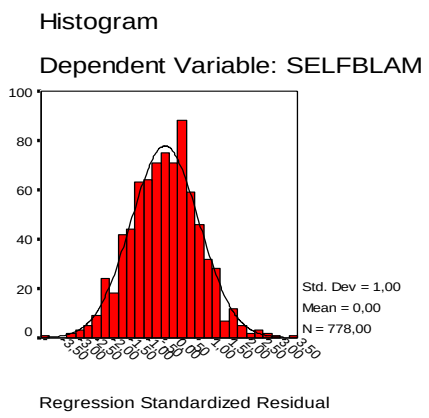

Figure 4.9. Histogram of Normality for Self Blame Strategies

According to Tabachnick & Fidell, (2001) multicollinearity exists when there are high correlations among the independent variables (r > .90). In order to check multicollinearity; collinearity diagnostics of VIF and Tolerance statistics revealed no values greater than 4 and smaller than .20. So, there is no multicollinearity problem. The correlation between independent variables should be less than .9 (Tabachnick & Fidell, 2007). Table 4.12 presented the tolerance and VIF values, Table 4.13, intercorrelations among the variables in

order to check multicollinearity assumption. Findings indicated that the assumption was satisfied.

Table 4.12

Tolerance and VIF Values of Predictor Variables for Multicollinearity

Variables	Tolerance	VIF
Goal Incongruence	.96	1.03
Agency	.98	1.01
Testing ProblemEfficacy	1.00	1.00
Academic Self Efficacy	.99	1.00
Test Anxiety	.99	1.01

Linearity assumption shows the linear relationships among the independent variables and the dependent variable. “If nonlinearity is present, the overall shape of the scatterplot is curved instead of rectangular” (Tabachnick & Fidell, 2007, p.138). Checking scatterplots, linearity assumption can be determined. According to scatterplot on figure 4.10, which is not curved, as a result, there was no evidence for the violation of the assumption of linearity.

For testing homoscedaticity assumption, scatter plot was checked. According to Tabachnick & Fidell (2007, p.127) homoscedasticity assumption is “the assumption that the standard deviations of errors of prediciton are approximately equal for all predicted dependent variable scores”. As can be seen on figure 4.10, the assumption was satisfied.

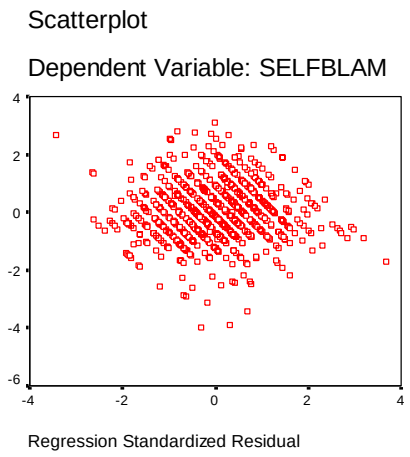

Figure 4.10. Scatterplot of Self Blame Strategies

To check the assumption of independent of residuals which requires errors' not being correlated, Durbin –Watson statistic was tested (Field, 2005). Durbin- Watson value should be close to 2 (should not be greater than 2.5 and less than 1.5) in order not to violate that assumption (Tabachnick & Fidell, 2001). The Durbin –Watson value was found 1.91.

In conclusion, these findings indicate no violation of the main assumptions of multiple regression analysis.

Table 4.13

Intercorrelations among the Predictor Variables

Variable	M	SD	1	2	3	4	5	6	7
Self Blame	3.0	.86	1.00						
Gender			-.11	1.00					
Goal Con.	4.0	.85	.39	-.18	1.00				
Agency	4.0	.82	.38	-.11	.63	1.00			
TPE	3.4	.91	.33	.01	.41	.42	1.00		
ASE	2.8	.54	.30	.05	.31	.34	.56	1.00	
Test Anxiety	2.4	.85	.16	-.09	-.02	-.01	-.22	-.11	1.00

4.5.4.2. Findings of Regression Analysis

Table 4.14 shows the findings of hierarchical regression analysis for self blame strategies. Step 1 included demographic variables, which are gender. In step 1, when only gender is used as a predictor, gender accounts for 1.4 % of the variation in self blame strategies, $\Delta R^2 = .014$, $\Delta F (1,776) = 10.76$. Cognitive appraisal processes were added in step 2; $\Delta R^2 = .100$, $\Delta F (3,773) = 24.69$; $p < .05$. Gender and cognitive appraisal processes accounts for 10 % of the variation in self blame. After step 3, with the addition of academic self efficacy, $\Delta R^2 = .0108$, $\Delta F (1,772) = 7.11$, $p < .05$. After step 4, with the addition of Test anxiety, $\Delta R^2 = .27$, $\Delta F (1,771) = 185.03$ was found. Final model accounts for 27 % of the variation in self blame. Test anxiety explains 17 % of the variation ($sr^2 = .17$). As a result, test anxiety is the most powerful predictor in the self blame strategy.

Except testing problem efficacy, all predictors have positive relationships. Moreover, except gender and testing problem efficacy in model 4, all of the predictors were statistically significant. Unique contribution of each predictor was examined using semi-partial correlation coefficients (sr^2). For this model, test anxiety was the most powerful predictor among all the variables.

Table 4.14

Results of the Hierarchical Regression Analysis for Self Blame Strategies

Predictor Variables	R^2	B	SE	β	*t*	Sr^2
Step 1	.01					
Gender		-.20	.06	-.11	-3.28*	-.01
Step 2	.10					
Gender		-.12	.06	-.07	-2.00*	-.00
Goal Congruence		.10	.05	.10	2.23*	.00
Agency		.26	.05	.25	5.47*	.03
Testing Problem Efficacy		-.06	.04	-.06	-1.66*	.00
Step 3	.10					
Gender		-.13	.06	-.07	-2.20*	.00
Goal Congruence		.09	.05	.10	2.10*	.00
Agency		.24	.05	.24	5.21*	.03
Testing Problem Efficacy		-.11	.04	-.11	-2.72*	.00
Academic Self Efficacy		.18	.07	.11	2.66*	.00
Step 4	.27					
Gender		-.07	.05	-.04	-1.33	.00
Goal Congruence.		.10	.04	.08	2.17*	.00
Agency		.21	.04	.20	4.88*	.02
Testing Problem Efficacy		-.00	.03	-.00	-.03	.00
Academic Self Efficacy		.16	.06	.10	2.81*	.01
Test Anxiety		.43	.03	.43	13.60*	.17

Note. Dependent Variable = Self Blame. *p < .05

4.5.4. Summary of the Results

Confirmatory factor analysis (CFA) was conducted on the 33 items to examine eight factor structure of emotion regulation during test taking (ERT) scale. As a result of the CFA, importance reappraisal factor was removed from the scale, because this factor was not functioning. In addition, confirmatory factor analyses were performed to test the one-factor structure of the test anxiety scale and academic self efficacy scale. Findings confirmed that both of them have unidimensional structure. Furthermore, item 7 was removed from the academic self efficacy scale, because of the low item-total correlation (< .30). According to reliability findings, Cronbach's alpha coefficients were .85 for Test anxiety scale (8 items), .76 for Academic self efficacy scale (6 items), and ranged from .58 to .75 for ERT scale.

Four separate hierarchical regression analyses were conducted to examine the role of gender, cognitive appraisal processes (goal congruence, agency, and testing problem efficacy), academic self efficacy, and test anxiety in predicting four emotion regulation strategies: task focusing, tension reduction, wishful thinking, and self blame strategies. For task focusing strategy, all of the predictors were found statistically significant. For tension reduction strategy, except the agency, all predictors were statistically significant. In wishful thinking strategy, except the goal congruence, all predictors were statistically significant. Finally, in self blame strategy, except gender and testing problem efficacy, all predictors were statistically significant. Test anxiety was found to be the most powerful predictor for all the dependent variables. Girls tend to use more emotional regulation strategies than boys.

CHAPTER V

DISCUSSION

This chapter represents the summary of the findings of the present study. Following this summary, implications of the major findings are discussed and recommendations for future research are presented.

5.1. Summary of the Study Results

This study was a correlational study in which the relationship between cognitive appraisals processes, academic self efficacy, and test anxiety in predicting eighth grade students' emotion regulation strategies during test taking were examined. Additionally, gender was included as a predictor of emotional regulation strategies of eighth grade students in test taking. Data were collected through administering Emotion Regulation during Test Taking Scale (ERT) (Schutz et al., 2004), Anxiety subscale of Academic Emotions Questionnaire (AEQ) (Pekrun et al., 2002), and Academic Self-Efficacy Scale (ASE) (Jerusalem & Schwarzer, 1995). Participants were volunteered 778 eighth grade students (398 females and 380 males) in seventeen schools of Çankaya and Yenimahalle districts in Ankara. Separate hierarchical multiple regression analyses were performed for four outcome variables. Before, Confirmatory Factor Analysis was performed on the *Emotion Regulation during Test Taking Scale* (ERT) to provide evidence for construct validity. In addition, reliability coefficients were examined. Only *importance reappraisal* factor was found problematic resulting not-admissible solution in CFA and low reliability value of .46. Therefore, this subscale was removed from the scale for further statistical analyses. In a recent study, DeCuir-Gunby, Aultman, and Schutz (2009) found the reliability of *importance reappraisal* as .68. They suggested that using ERT scale with additional items may allow for

greater reliability that could influence future results. In the present study, reliability coefficients ranged from .58 to .75 for other subscales were deemed acceptable.

While examining the descriptive statistics, it was observed that students had relatively low test anxiety while having high level of academic self efficacy. Task focusing strategies were reported as being the most frequently used strategy. Task focusing strategy is one form of coping with stressful situations. In this strategy, students use some tactics and strategies such as managing time or looking for the main idea. Thus, task focusing strategies help students to stay focused on the test (Schutz, Benson, & Decuir-Gunby, 2008). On the other hand, wishful thinking and self blame were relatively less used. It appeared that students tend to use task-focusing strategies rather than emotion-focusing ones. This finding shows consistency with the previous studies in the literature (Çapa Aydın & Emmioğlu, 2008; Schutz et al., 2008).

Hierarchical multiple regression analysis allows the researcher to decide the order in which variables are entered into the model (Field, 2007). Regarding the literature review, researchers decided to order of the predictors. In the current study, four separate regression analyses were performed in which task focusing processes, tension reduction, wishful thinking, and self-blame were used as the outcome variable. Overall, the models explained 22-29% of the variation in the outcome variables. Test anxiety was found as the most salient predictor in all models, followed by academic self-efficacy. Both of these predictors were positively related with task-focusing and emotion-focusing strategies. In other words, as students become more anxious and more efficacious, they tend to use strategies more. For students who have high test anxiety, ‘analyzing questions’ or ‘checking answers’ strategies may be a signal, because they do not know the true answer. Thus, these strategies are seen as being more closely related to ‘feeling anxious’. Similarly, Kondo (1997) and Schutz et al. (2002) reported that there are connection between task

focusing strategies and test anxiety. Çapa Aydın and Emmioğlu (2008) found students who used more emotion regulation strategies (wishful thinking and self blame) have higher test anxiety. In addition, in their study DeCuir-Gunby et al. (2009) found that all of the strategies (including task-focusing and emotion focusing) were significantly and positively related to test anxiety. Their study also examined the relationship with positive emotions like test hope and test pride, as well. Task-focusing processes rather than emotion-focusing processes were significant predictors of positive emotions.

With respect to gender variable, there were significant differences between female and male students. Female students tended to use all of the emotional regulation strategies more than males. Female students not only used more strategies, but also were more test anxious than male students. Çapa Aydın and Emmioğlu (2008) reported similar findings with high school students. Similarly, Davis et al. (2006) said that girls tended to report significantly higher levels of test anxiety than boys. Furthermore, girls reported significantly higher wishful thinking and lower self-blame than boys. In addition, female students used tension reduction more than males.

The predictive power of cognitive appraisal processes differed depending on the outcome variable. For instance, for task-focusing processes, all of the appraisal variables (agency, testing problem efficacy, and goal congruence) were significant predictors. Schutz et al. (2008) presented consistent findings and reported that increase in the score of cognitive appraisal was parallel to the increase in using the task focused processes. On the other hand, agency was not significant when the outcome variable was tension reduction. Goal congruence was not significant for wishful thinking and testing problem efficacy was not significant for self-blame. Some of these findings were a little bit surprising. For example, agency and testing problem efficacy were theoretically expected to be negatively related with self-blame. As put forward by Schutz et al. (2008) and DeCuir-Gunby et al. (2009), when students have

high test efficacy, self-blame may be short lived and as a consequence their emotions (like anxiety) were less affected. It is also expected that students who control how well they perform on the test (i.e., agency) tend not to use self-blame strategy, but in the current study, agency was positively correlated with self blame.

In conclusion, this study presented the predictors that significantly contributed to emotion regulation strategies during test taking, considering the importance of these strategies during test taking.

5.2 Implications for Practice

Emotions are fundamental part of the educational activity settings and, therefore, understanding of the nature of emotions is an essential goal. These emotions (anger, anxiety, pride, hope etc.) are seen in students' every step of academic life, such as testing situations. Therefore, this study aimed to investigate the role of gender, cognitive appraisal processes, academic self efficacy, and test anxiety in predicting emotion regulation strategies during test taking.

Based on the results of the study, these findings may provide some practical information for teachers and counselors of eighth grade students. Educators can teach their students how to use emotion regulation strategies (for example, students can learn how to set suitable learning goals (goal congruence), how to focus on a task (task focusing strategy use), and how to relax while taking a test (tension reduction).) in taking test. In addition, training programs may be developed for promoting emotion regulation strategies used in handling anxiety or other negative emotions mostly experienced by 8th grade students and lower graders (6th and 7th).

In this way, students become aware of their emotions and may handle it in test taking. Moreover, educators should help students to think positive about tests and their ability to take tests (test hope, test pride, and test efficacy). Thus this study may help to change this undesired testing environment to a friendlier one for students. In this vein, the present study provided an empirical support for the relationship between academic self-efficacy and emotion regulation strategies. That means if students believe in their capabilities, they may change their appraisal process that would lead to better means of coping with emotions. This finding also led practitioners to emphasize more on positive practices.

Moreover, findings showed that females have higher scores on all of the strategies compared to males. Therefore, importance may be given to gender differences while designing training programs or teachers may observe female and male students' behavior more carefully, while taking tests.

5.3. Recommendations for Future Research

In the present study, the relationships between different variables were examined at a point in time. As also suggested in the literature, it would be really helpful to examine emotional regulation variables longitudinally at different grade levels (i.e., 6th, 7th, and 8th grades). However, because the ERT scale is a relatively new instrument and suffers from psychometric properties, validation studies are required as a preliminary step to further analyses. As observed during the administration of the scale in this study, 8th graders had difficulty in answering some items, leading to lower than optimal reliability coefficients for some of the subscales. Additional items and rewording/revising may enhance the psychometric characteristics of the scale. After these improvements, similar studies can be conducted with high school students preparing for the university entrance exam. University students would be another target population to study with.

Beside quantitative studies, qualitative studies should be conducted to examine the role of gender, cognitive appraisal processes, academic self efficacy, and test anxiety in predicting emotion regulation strategies. Qualitative study may help to researchers to obtain more information about test taking atmosphere. Researchers can interview with the teachers, students, and parents or they can observe the test taking process in the classroom. Multi method approach would give better picture of students' test taking process.

This study examined predictors of emotion regulation strategies during the test taking including gender, cognitive appraisal processes, academic self efficacy, and test anxiety. These variables explained 20-30% of the variance. However, there may be other alternative variables, such as parents' education level, whether students take private lesson or not, school type (private or public school), students' motivation or self regulation. Future studies may explore these variables as well. It is also imperative to examine positive emotions (e.g., pride, hope) during test taking in addition to well-studied test anxiety.

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APPENDIX

Sample Items of Anxiety subscale of Academic Emotions Questionaire	Hiçbir zaman	Nadiren	Bazen	Çoğu zaman	Her zaman
1. Sınav sırasında sınavı geçip geçemeyeceğim konusunda sıklıkla endişelenirim.	1	2	3	4	5
2. Sınav sırasında o kadar gergin olurum ki sınavı atlatmış olmayı dilerim	1	2	3	4	5
3. Sınav sırasında o kadar gergin olurum ki sınavın bitmesini bekleyemem.	1	2	3	4	5

Sample Items of Emotion Regulation during Test Taking Scale	Hiçbir zaman	Nadiren	Bazen	Çoğu zaman	Her zaman
1. Sınav sırasında problemlerim olduğunda, konuyu bilmediğim için kendime kızarım.	1	2	3	4	5
2. Sınavlarda gösterdiğim başarı sınıfta ne öğrendiğimi bana gösterdiği için faydalıdır.	1	2	3	4	5
3. Sınav sırasında problemlerim olduğunda rahatlamak için bir dakika ara veririm.	1	2	3	4	5
4. Eğer sınavda başarılı olmazsam bu benim hatamdır.	1	2	3	4	5
5. Sınav sırasında problemlerim olduğunda, derin bir nefes alırım.	1	2	3	4	5

Sample Items of Academic Self-efficacy Scale		Bana hiç uymuyor	Bana çok az uyuyor	Bana uyuyor	Bana tamamen uyuyor
1.	Öğrenim hayatımda her zaman yapılması gereken işleri başarabilecek durumdayım	1	2	3	4
2.	Yeterince hazırlandığım zaman sınavlarda daima yüksek başarı elde ederim.	1	2	3	4