

EFFECTS OF THINKING STYLES AND GENDER ON  
PSYCHOLOGICAL WELL-BEING

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## **ABSTRACT**

### **EFFECTS OF THINKING STYLES AND GENDER ON PSYCHOLOGICAL WELL-BEING**

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The purpose of the current study is to investigate how global and local thinking styles affect psychological well-being among undergraduate students. A total of 372 (213 females and 159 males) students at Middle East Technical University participated in this study. The qualitative data were gathered via self-report questionnaires including Scales of Psychological Well-Being, Thinking Styles Inventory and a demographic information form. To be able to determine the differences between psychological well-being due to global thinking and local thinking scores as well as gender, ANOVA was held. The results revealed a significant difference between high and low scorers of local thinking in terms of psychological well-being when the global thinking style was low. In addition, the findings indicated that for higher levels of psychological well-being individuals need to adopt one of the styles and report higher levels on that adopted style. On the other hand, the statistical analysis revealed no significant differences between high scorers of global thinking and low scorers of global thinking on psychological well-being. Additionally, no significant difference found between high scorers and low scorers of local thinking in terms of psychological well-being. Upon the examination of gender related findings, it was found that females reported higher levels of psychological well-being compared to males while males reported higher levels of global thinking than females did.

**Keywords:** Global thinking, local thinking, psychological well-being.

## ÖZ

### DÜŞÜNME STİLLERİ VE CİNSİYETİN PSİKOLOJİK İYİ OLMA HALİ ÜZERİNE ETKİLERİ

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Bu çalışmanın amacı bütünsel ve ayrıntısal düşünme stillerinin lisans öğrencilerinin psikolojik iyi olma haline etkisinin incelenmesidir. Çalışmaya 372 (213 kadın, 159 erkek) Orta Doğu Teknik Üniversitesi öğrencisi katılmıştır. Nitel veriler, Psikolojik İyi Olma Ölçekleri, Düşünme Stilleri Envanteri ve demografik bilgi ile toplanmıştır. Psikolojik iyi olma halinin bütünsel ve ayrıntısal düşünme stillerine ve cinsiyete göre farklılıklarını belirleyebilmek için ANOVA uygulanmıştır. Sonuçlar, bütünsel düşünme puanları düşük olanların, iyi olma hali sonuçlarının ayrıntısal düşünme anketinde düşük veya yüksek puan almalarına göre anlamlı farklılık gösterdiğini ortaya koymuştur. Ek olarak, bulgular, psikolojik iyi olma hali yüksek olan bireylerin düşünme stillerinden birini tercih etmeleri ve bu stilde de yüksek seviyede olduğunu göstermiştir. Buna karşın, istatistiksel analizler bütünsel düşünme anketinde yüksek puan alanlar ile düşük puan alanların psikolojik iyi olma puanları arasında anlamlı bir farklılık ortaya koymamıştır. Benzer şekilde ayrıntısal düşünme anketinde yüksek puan alanlar ile düşük puan alanların psikolojik iyi olma puanları arasında da anlamlı bir farklılık bulunamamıştır. Cinsiyet ile ilgili sonuçlar incelendiğinde kadınların erkeklerden daha yüksek psikolojik iyi olma durumu bildirirken erkeklerin kadınlardan daha yüksek bütünsel düşünme seviyesi bildirdikleri gözlenmiştir.

**Anahtar Kelimeler:** Bütünsel düşünme, ayrıntısal düşünme, psikolojik iyi olma hali.

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## CHAPTER I

### INTRODUCTION

In the 21<sup>st</sup> century, studies on psychology changed direction after Seligman's (1998) reminder: "Psychology is not just the study of weakness and damage, it is also the study of strength and virtue." (p. 2). In other words, "What is wrong with people?" was the question of 20<sup>th</sup> century whereas "What is right about people?" became the question of 21<sup>st</sup> (Snyder & Lopez, 2007). This change also affected the popular topics in the field of psychology; as some positive experiences, personality traits and civic virtues, like well-being, life satisfaction, hope, optimism, happiness, courage, spirituality and tolerance, are listed as being in the field of positive psychology (Seligman & Csikszentmihalyi, 2000).

Moore and Keyes (2003) defined well-being in adulthood as a combination of cognitive functioning, behavioral functioning, physical health and mental health. The cognitive functioning component includes positive thought processes whereas restorative sleeping is an example for physical health. In addition, Keyes and Waterman (2003) stated that the level of well-being also indicates how the individual is being involved in communal activities, such as volunteering and voting, and how one feels responsible to others. Researchers also presented people, who report high levels of well-being, consider themselves as "sources of intergenerational transmission of important social skills" (p. 493).

Two approaches for well-being; hedonic and eudaimonic defined by Ryan and Deci (2001). Hedonic well-being focuses on happiness and defines well-being in terms of pleasure attainment and pain avoidance, whereas eudaimonic well-being focuses on meaning and level of functioning in life and human potential. On the other hand, well-being literature designated two dimensions for well-being which are subjective and psychological well-being. Subjective well-being was defined as the individual's self-assessment related to life events and emerges as a result of the feeling of mastery, experiencing pleasurable activities and positive relations (Diener, Sapyta, &

Suh, 1998). In addition, subjective well-being was defined as the balance of positive and negative affect and satisfaction (Keyes, Shmotkin, & Ryff, 2002). Whereas, Bradburn (1969) defined psychological well-being in terms of positive and negative affect while Keyes et al. (2002) considered psychological well-being as the perceived commitment to existential challenges. When these approaches are considered together, subjective well-being, which emphasizes happiness, overlaps the hedonic approach while psychological well-being, which underlines the use of human potential, matches the eudaimonic approach (Deci & Ryan, 2008).

To confine the elements of psychological well-being, Ryff (1989) developed a six dimensional, which are self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth, model. Ryff established this model with an eudaimonic approach, based on the theories of scientists, namely Erikson, Maslow, Rogers, Allport, Neugarten, Bühler, Jung, Jahoda and Frankl (Ryff & Singer, 2008). Self-acceptance defines how an individual acknowledges positive and negative aspects of own personality and is pleased about past experiences. Individuals who are reported to have positive relations with others are able to establish warm and trusting relations, experience empathy and intimacy as well as understanding the dynamics of a relationship. Both autonomy and environmental mastery are concerning how an individual relates with social environment. Autonomy refers to the obedience of an individual to others whereas mastery refers to the ability to manipulate environment due to personal needs. Purpose in life is regarded as the fifth dimension of psychological well-being and refers whether an individual has aims for living and believes the meaning of life. The final dimension is personal growth and indicates an individual's competence for development and exploration.

Research on psychological well-being focused on cultural differences (Diener & Diener, 1995; Kwan, Bond, & Singelis, 1997), individual differences (Sheldon & Niemiec, 2006; Sheldon, Ryan, Deci, & Kasser, 2004; Wissing & Van Eeden, 2002), change in psychological well-being through life span (Blanchflower & Oswald, 2008; Shields & Price, 2005) and gender differences due to gender stereotypes (Mills, Grasmick, Morgan, & Wenk, 1992; Roothman, Kirsten, & Wissing, 2003).

Thinking style refers to the way an individual prefers to process and manage the intellect and knowledge (Zhang & Sternberg, 2000). Sternberg (2009) defined 5 dimensions, which are functions, forms, levels, scopes and leanings, and 13 thinking styles grouped under these dimensions in the theory of mental self-government. Functions refer to the individual preference of initiating new ideas and practice, setting regulations or evaluating. Legislative, executive and judicial thinking styles are included in this dimension. The second dimension, which is forms, includes monarchic, hierarchic, oligarchic and anarchic styles and refers to how individuals prefer to approach the life events. Levels, including global and local thinking styles, identify the individuals focusing on abstract and large issues or the individuals paying attention to concrete issues and details. The fourth dimension is scopes, which embrace internal and external styles, and refers to preference of individuals to be introverts or extraverts. Leanings, which include liberal and conservative thinking styles, is the fifth dimension defined by Sternberg and associated with the flexibility of individuals about transcending existing rules or adherence to the rules. In addition Zhang and Sternberg (2006) grouped 13 thinking styles into 3 types; Type I styles are perceived more positive and adaptive and include legislative, judicial, hierarchical, global, and liberal styles whereas Type II styles are more negative and less adaptive and include executive, local, monarchic, and conservative styles. Finally, Type III styles are neither positive nor negative but adaptable due to the requirements of a situation and include anarchic, oligarchic, internal, and external.

Global thinking style is characterized by concentrating on the big picture, ignoring details, preferring abstractness, enjoying generalization, conceptualizing and thinking (Sternberg, 2009; Zhang & Sternberg, 2001). Whereas local style identify focusing on details, preferring concreteness, avoiding conceptual analysis and experiencing difficulty in distinguishing important from unimportant (Fer, 2005; Sternberg, 2009).

The studies on thinking styles can be clustered under three approaches. First group of studies focus on the relationship between thinking styles and personal variables, such as socioeconomic status, birth-order and age, and environmental characteristics, exemplified with learning settings, parental thinking styles and preferred extracurricular activities. The second group explores the role of thinking styles on

different aspects, such as academic achievement, cognitive and psychosocial development of student development and learning. The third group investigates how thinking styles correspond to other style constructs, for instance Biggs' learning approaches and Holland's career personality types (Zhang & Sternberg, 2006).

Thinking styles frequently studied in educational concepts since thinking is the core of education and considered as being one of the components which shape the learning environment. In addition, in literature there are recent research which focused on thinking styles and technology usage (Kao, Lei, & Sun, 2007). But in psychology this concept did not attract much attention, although the way individuals think leads to thoughts which is one of the three main aspects of human beings as stated by Cloninger (2008). Thinking styles are cognitive preferences, which affect how an individual behaves and feels, and selected as a cognition representative for this study.

Generally, researchers preferred to consider thinking styles as a whole and study 13 styles together since they constitute a profile for an individual's thinking preferences (Zhang, 2000). When the results of thinking style studies are examined, the differences between global and local thinking styles and how they affect individuals can be identified. For example, teachers' preferences between global and local thinking changes according to their profession (Zhang, 2008a), male students prefer global thinking more than females do (Zhang & Sternberg, 2006) and global thinking style is positively related with the ability to deal with emotions (Zhang, 2008c).

Furthermore, Zhang and Sternberg (2006) stated that for teachers some intellectual styles, which embrace thinking styles, contribute more to psychological well-being than others. Although review of literature did not revealed any study focusing on the effects of thinking styles on psychological well-being, there are some studies on the relationship between thinking styles and the components of psychological well-being defined by Ryff (1995). Zhang and Postiglione (2001) examined thinking styles and the level of self-esteem among university students in Hong Kong and concluded that Type I thinking styles are related to higher self-esteem whereas Type II thinking styles are related to lower levels of self-esteem. In addition, Zhang and Sternberg

(2006) considered three types of thinking styles as the ground they based the nature of intellectual styles and related Type I styles with autonomy while researchers defined Type II styles with authority. Zhang and Sternberg (2006) also stated that teachers preferring Type I thinking styles tend to demonstrate positive perceptions about job environment and participate in positive experiences like attending training or extra-curricular activities, both are contributors to high levels of psychological well-being. On the other hand, Zhang (2006) stated that neuroticism which negatively related to well-being is found to be correlated with local thinking. Similarly, Kadivar and Shokri (2008) found that neuroticism have positive effect on local thinking style.

As these findings considered in the frame of this study, since positive self-esteem and autonomy are defined as components of psychological well-being by Ryff (1995) and life satisfaction contributes to psychological well-being while neuroticism undermines psychological well-being, it can be hypothesized that global thinking style, grouped under Type I, is related to higher levels of psychological well-being while local style, which is a Type II style, is related to lower levels of psychological well-being.

Moreover, studies on levels-of-focus introduced relations among global and local focus, similar concepts with global and local thinking, and feelings. Gasper and Clore (2002) concluded that individuals who are feeling happier tend to focus on the big picture more than details of the picture compared to sadder individuals. Similarly, Derryberry and Reed (1998) stated that high anxious individuals attend to details more than low anxious ones. Likewise, Basso and his colleagues (1996) found that positive mood and optimism are positively related to global focus and negatively related to local focus, whereas depression and anxiety are positively related with the local focus. In the light of these findings, focusing on the forest or on the trees, in thinking style terms global or local thinking, seems to be related with happiness, optimism and psychological well-being.

### **1.1. Purpose of the Study**

The purpose of this study is to examine the effects of levels of global and local thinking styles and gender on psychological well-being among university students.

## **1.2. Research Questions**

The research questions of this study are:

1. Is there any difference between high and low levels of global thinking in terms of undergraduate students' psychological well-being?
2. Is there any difference between high and low levels of local thinking in terms of undergraduate students' psychological well-being?
3. Is there any difference between female and male students on undergraduate students' psychological well-being?

## **1.3. Definitions of Terms**

*Well-being*: The capacity to actively participate in work and recreation, create meaningful relationships with others, develop a sense of autonomy and purpose of life, and to experience positive emotions (Hatch, Huppert, Abbott, Croudace, Ploubidis, Wadsworth, Richards, & Kuh, 2007).

*Psychological well-being*: How commitment to existential challenges is perceived (Keyes et al., 2002).

*Thinking styles*: A person's preferred way of thinking and using abilities (Sternberg, 2009).

*Global thinking*: The thinking style is characterized with preference to deal with relatively large and abstract issues and ignoring details (Sternberg, 2009).

*Local thinking*: The thinking style is characterized with enjoying concrete problems and requirement to deal with details (Sternberg, 2009).

## **1.4. Significance of the Study**

Although there are several studies on thinking styles and psychological well-being independently, the review of related literature revealed that these constructs were not studied together, pointing out an open area for research. The results of a study focusing on the effect and correlation of thinking styles and psychological well-being may contribute to understand another aspect of personality which affects psychological well-being. Specifically, this study aimed to examine the effects of gender and thinking levels (global and local thinking) on psychological well-being and it is expected that the results of the study will provide information about thinking level of Turkish undergraduate students and its effect on psychological well-being. The results are assumed to be important for both research and counseling practice.

Zhang and Sternberg (2006) grouped thinking styles literature under three subject areas, which are the relation between thinking styles and personal variables, role of thinking styles in various aspects of life and the correspondence between thinking styles and other styles constructs. In Turkish literature, thinking styles are frequently studied in educational contexts to be able to define the characteristics of teachers and administrators and to find out how several personality traits of individuals employed for education, such as externality and coping behaviors, are related to thinking styles (Balgalmış, 2007; Palut, 2003; Palut, 2008). Furthermore, undergraduate students of faculty of education were also selected as samples for studies. These studies aimed to define the thinking style characteristics of students in different departments and how the styles vary due to demographic variables (Buluş, 2005; Fer, 2007; Saracaloğlu, Yenice & Karasakaloğlu, 2008). As the samples of these studies are examined, it is obvious that research on thinking styles is limited to educational context. For the current study, undergraduate students from various departments are chosen to exemplify Turkish undergraduate students, in order to figure out thinking styles preference of them, specifically their preference on global and local thinking. This result may help for a better understanding of university students.

Moreover, psychological well-being was studied from various aspects; personal and cultural differences affecting psychological well-being, predictors of psychological well-being and change of psychological well-being over lifespan (Blanchflower & Oswald, 2008; Brown & Ryan, 2003; Diener & Diener, 1995; Kwan et al., 1997;

Roothman et al., 2003; Sheldon & Niemiec, 2006; Shields & Price, 2005). In Turkish literature, psychological well-being has been studied with various samples including university students, married couples, military officers and cancer patients. The studies on university students focused on the predictors of psychological well-being, the relation between social support and psychological well-being as well as the effect of personal differences on psychological well-being (Aydın, 1999; Cenkseven 2004; Cirhinlioğlu, 2006; Gençöz & Özlale, 2004). When the concepts these studies are examined, there is a neglect about the cognitive aspect of the psychological well-being. Although cognition is accepted as the third dimension of personality influencing affect and behavior as well as being influenced by them, studying on how the cognitive characteristics of individuals affect well-being has not been a popular topic. In this study, thinking levels are considered as a representative of cognitive structure affecting well-being. Therefore, this study will be a preliminary study on both thinking styles and well-being, and cognition and well-being.

The results of the study are expected to provide information about the effect of thinking level on psychological well-being of undergraduate students. It is believed that formulating the more positive and efficient thinking styles in terms of psychological well-being may contribute to counseling practice. Once which thinking style is positively related to psychological well-being is found, counselors can work on changing the less effective styles to more effective ones in order to improve individual's psychological well-being. Although, thinking styles are generally learned via socialization, styles are also teachable (Sternberg, 2009). Based on this characteristic of thinking styles, several activities can be developed for counseling practice.

Furthermore, the determination of gender effects on psychological well-being would help to identify any specific need of females or males. When a difference between genders on psychological well-being is found, related and needed activities could be prepared and planned for the gender group which needs more attention and concern.

## CHAPTER II

### REVIEW OF LITERATURE

This chapter presents the literature related to well-being and thinking styles. The first section contains reviews of literature related to well-being, dimensions of well-being focusing on psychological well-being, and Turkish literature on psychological well-being of university students. The last section includes research on thinking styles, Sternberg's theory of mental self-government and studies conducted in Turkey with university students.

#### 2.1. Well-Being

Lexical meaning of well-being is “a contented state of being happy, healthy and prosperous” and it refers “optimal psychological experience and functioning” (Deci & Ryan, 2008, p. 1). Well-being is also defined as “a positive and sustainable state that allows individuals, groups or nations to thrive and flourish” (p. 1331) and well-being is exemplified with happiness, satisfaction, empathy, motivation, interest, physical vitality, satisfying social relationships and resilience (Huppert, Baylis & Keverne, 2004).

Ryff (1995) provided another definition about well-being and explained that well-being acquires more than not being ill but positive self-esteem, mastery, autonomy, positive relationships with other people, a sense of purposefulness and meaning in life, and feelings of continued growth and development. Parallel to Ryff's definition, Cloninger (2008) stated that authentic well-being involves positive emotions, mature character traits, like self-directedness, cooperativeness, and self-transcendence, life satisfaction, and character strengths and virtues, such as hope, compassion, and courage. In addition self-awareness was pointed as the key to authentic well-being depending on the fact that simulation of the features of well-being diminishes if the features are not internalized, experienced spontaneously and being aware of the self

and action (Cloninger, 2008). Besides self-awareness, self-acceptance is shown to be a way to develop well-being (Henry, 2007).

Well-being research was categorized under two approaches as stated by Ryan and Deci (2001). Researchers defined hedonic and eudaimonic approaches for well-being research. Hedonic well-being refers to studying on happiness and defining well-being in terms of pleasure attainment and pain avoidance, whereas eudaimonic well-being is characterized by focusing on meaning and level of functioning in life and human potential. The term eudaimonic is originated from "Aristotle's *Nicomachean Ethics* (1947), which states that the highest of all goods achievable by human action is happiness" (Ryff, 1989, p. 1070). But there are also other perspectives, which criticize this direct connection, such as Waterman's. Waterman (1984) stated that eudaimonia is more precisely defined as "the feelings accompanying behavior in the direction of, and consistent with, one's true potential" (as cited in Ryff, 1989, p. 1070). Moreover, Ryff and Singer (2008) examined Aristotle's work and concluded that he did not consider only the bodily pleasures and pain, but emphasized self-fulfillment and growth. Additionally, Deci and Ryan (2008) asserted that well-being cannot be considered as an outcome but it should be considered as the process of self-fulfillment as thought in eudaimonic standpoint. Although hedonia and eudaimonia are separate concepts, when they are thought in well-being context, these two concepts are not independent at all; Waterman, Schwartz and Conti (2008) emphasized that as individuals experience eudaimonia while developing their potentials they also experience hedonic happiness. In other words, eudaimonia leads to hedonic happiness even though hedonic happiness is not a satisfying condition for eudaimonia.

### **2.1.1. Dimensions of Well-Being**

Besides the hedonic and eudaimonic approaches, well-being is generally separated into two dimensions; subjective well-being and psychological well-being. Subjective well-being is usually defined as happiness and absence of problematic events, while psychological well-being includes individual development, self-actualization, attempting to grow up (Waterman, 1993, as cited in Kuzucu, 2006). Similarly, Keyes

and colleagues (2002) specified subjective well-being as the balance of positive and negative affect, and satisfaction whereas psychological well-being is how commitment to existential challenges is perceived.

Although subjective well-being and psychological well-being are usually accepted as separate dimensions there are other perspectives. Keyes and Waterman (2003) supposed that psychological well-being is one of the three aspects of subjective well-being, other two aspects are social and emotional well-being. Moreover, Keyes and colleagues (2002) found that the two dimensions are distinct but still have overlapping aspects, which are environmental mastery and self acceptance. These overlapping aspects were not considered as being related to subjective well-being theoretically but the relation was statistically proven.

Furthermore, when eudaimonic and hedonic well-being perspectives are considered, subjective well-being, which emphasizes happiness, overlaps the hedonic approach while psychological well-being, which underlines the use of human potential, matches the eudaimonic approach (Deci & Ryan, 2008).

### **2.1.2. Subjective Well-Being**

Subjective well-being is said to be related to the people's emotional and cognitive evaluations of how well they feel and how functional they are both personally and socially (Keyes & Waterman, 2003; Moore & Keyes, 2003). In other words, subjective well-being depends on evaluation of life satisfaction, the frequency of pleasant and unpleasant affect and how the individual perceives them (Diener & Lucas, 2003). Similarly, Myers and Diener (1995), who used well-being and subjective well-being interchangeably, stated that subjective well-being is correlated with three independent factors which are existence of positive affect, nonexistence of negative affect and life-satisfaction. In addition researchers considered satisfaction with life, work, marriage and other domains as cognitive level of well-being, whereas pleasant emotions and positive appraisal as affective level.

### **2.1.3. Psychological Well-Being**

About psychological well-being, a pioneer study was conducted by Bradburn (1969). Bradburn used psychological well-being interchangeable with happiness and mentioned two dimensions which are positive and negative affect. From this point of view being high in psychological well-being reflects a dominance of positive over negative affect. Bradburn emphasized that although positive and negative affect are independent of each other, the frequency of both positive and negative affects determine the level of psychological well-being. Furthermore, Bradburn excluded self-actualization, autonomy and self-esteem concepts although researcher accepted these concepts as the species of trees in the psychological well-being forest. Although, Bradburn did not ignore concepts like autonomy and self-esteem, and that study is accounted as being one of the pioneers of psychological well-being studies, the emphasis on positive and negative affect can be interpreted as what Bradburn studied was subjective well-being rather than psychological well-being, in the light of the definitions of subjective and psychological well-being (Diener & Lucas, 2003; Keyes et al., 2002; Myers & Diener, 1995).

Later, to define psychological well-being, Ryff (1989) developed a six dimensional theory. Keyes and Ryff (1998) stated that this theory analyzed psychological well-being from a eudaimonic perspective and combined the psychological functioning theories which are Maslow's conception of self actualization, Rogers' fully functioning person, Jung's individuation formation and Allport's depiction of maturity. In addition, Erikson's, Buhler's and Neugarten's theories on adult development were included as well as Jahoda's mental health approach. The six dimensions of Ryff's theory are self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. According to Ryff's theory, self-acceptance defines how an individual acknowledges positive and negative aspects of own personality and is pleased about past experiences. Self-acceptance is considered as a dimension of psychological well-being since it is accepted as one of the criteria needed for embodiment of mental health (Jahoda), self actualization (Maslow), optimal functioning (Rogers) and maturity (Allport). Since ability to love (Jahoda), to feel empathy (Maslow), to develop warm relations

(Roger) and feeling responsible to other people (Erikson) are considered as aspects of positive functioning, positive relations with others became one of the six dimensions. Individuals who are reported to have positive relations with others are able to establish warm and trusting relations, experience empathy and intimacy as well as understanding the dynamics of a relationship. Both autonomy and environmental mastery are concerning how an individual relates with social environment. Autonomy refers to how an individual survives independently whereas mastery refers to the ability to manipulate environment due to personal needs. Independency and self-evaluation according to self standards are needed in order to evaluate one as autonomous. Whereas, feeling of being able to manage daily events as well as change context due to individual needs are the characteristics of environmental mastery. Specifying a purpose for life and having a plan accordingly are defined as an feature of maturity by Allport. Therefore, purpose in life is regarded as the forth dimension of psychological well-being based on Allport and other theorists' view point. Purpose in life refers whether an individual has aims for living and believes the meaning of life. The final dimension is personal growth and indicates an individual's competence for development and exploration. Being open to new experiences, perceiving self as changing and growing as well as using personal potential are characteristics of personal growth.

Supporting the dimensions defined by Ryff (1989), autonomy, competence and relatedness are also found to be related to well-being in studies conducted in the frame of Self-Determination Theory. Self-determination theory defines these three traits as basic psychological needs. More specifically competence is found to be the need that should be fulfilled most consistently for well-being since competence-need fulfillment is positively and uniquely related to self-esteem and positive affect (Patrick, Knee, Canevello & Lonsbary, 2007). In addition Sheldon and Niemiec (2006) interpreted that the experience of balanced autonomy, competence and relatedness-need fulfillments arose higher levels of well-being. In addition, autonomy was pointed out as a factor leading psychological well-being by Sheldon and his colleagues (2004). Researchers administered three studies to test how the content of goals and the drives underlying these goals affect the psychological well-being. These studies suggested that the goals from extrinsic forces done for reasons

controlled by others results in lower levels of psychological well-being. Thus, intrinsically directed and autonomous actions lead higher psychological well-being.

Recently, Wissing and Van Eeden (2002) attempted to achieve an empirical clarification of the psychological well-being and administered 10 questionnaires to a diverse sample. The researchers concluded that psychological well-being had a multidimensional composition with regard to affective, behavioral and cognitive aspects of self and life domains such as intrapersonal and interpersonal relations and social network. The indicators of the general psychological well-being were defined as sense of coherence, satisfaction with life and affect-balance.

### **2.1.3.1. Research on Psychological Well-Being**

To introduce the predictors and the factors affecting psychological well-being, several studies were conducted and some of these studies were explained in this part.

In order to find out the predictors of the psychological well-being Diener and Diener (1995) conducted a cross-cultural research. The results of the study showed that predictors of well-being differ due to the structure of culture to which the individual belongs. Researchers stated that self-esteem is correlated to life satisfaction, which is one of the aspects of well-being, in individualistic Western countries than it has in collectivist Eastern countries. Another cross-cultural study was conducted by Kwan, Bond, and Singelis (1997) to compare the effects of self-esteem and relational harmony on well-being in United States of America, considered as an individualistic country, and Hong Kong, a collectivist country. According to the results relational harmony significantly affects well-being in Hong Kong while it has no effect on well-being in United States, although having positive relations with others is one of the eudaimonic dimensions of well-being as stated by Ryff (1989).

The correlation between demographic factors, including age and gender, and psychological well-being was also studied. The correlation between age and well-being is recently studied by Blanchflower and Oswald (2008) who considered happiness as an indicator and concluded that well-being displays a U-shaped change as the age changes. The researchers studied with a large sample from USA and

Europe, and found that well-being degrades to the lowest level in middle ages. The European sample included Turkish participants and the turning age of the U-shape for Turkish sample is found to be 45. U-shape correlation is also found by Shields and Price (2005) who stated the minimum level of psychological well-being is around the age of 34. On the other hand, the change of happiness on life cycle showed a slight increase from 18 to midlife and decrease afterwards as the satisfaction from several life domains increase through midlife but decline after midlife in Easterlin's (2006) study. In addition, Keyes and colleagues (2002) stated that the younger adults with less education report lower levels of subjective and psychological well-being.

In addition, gender differences on psychological well-being are a common topic studied generally in terms of gender roles. Roothman, Kirsten and Wissing (2003) conducted a study to find how psychological well-being varies due to gender. The researchers administered 13 instruments to measure general, affective, cognitive, physical, spiritual, self and social aspects of psychological well-being and concluded that females and males reported differences. Roothman et al. (2003) observed that men scored significantly higher on cognitive, physical and self aspects, whereas women scored significantly higher on somatic symptoms, expressing affect and spiritual aspects but there was no difference between men and women regarding social dimension. When the results were evaluated together, researchers concluded that men scored higher than women and explained that difference with the "socially disadvantaged position historically held by women" (p. 216). Mills and his colleagues (1992) similarly stated that women reported significantly lower levels of psychological well-being than men did as a result of the study about effects of gender, family satisfaction and economic strain on psychological well-being.

Another study was conducted to examine the effect of variations of mindfulness to psychological well-being by Brown and Ryan (2003). Mindfulness refers "being attentive to and aware of what is taking place in the present" (p. 822). Mindfulness when taken as a characteristic of individuals varies due to the nature of personal traits and can be considered similar to self-acceptance and environmental mastery of Ryff's dimensions. Researchers administered a set of studies and concluded that

mindfulness is related to and also a predictor of more positive well-being and less cognitive and emotional disturbance.

### **2.1.3.2. Studies about Psychological Well-Being of University Students in Turkey**

There are also studies conducted to define the predictors and the factors affecting psychological well-being of Turkish university students and these studies were included in this section.

To determine the predictors of university students' subjective and psychological well-being Cenkseven (2004) conducted a study while Tuzgöl (2004) studied how the subjective well-being level of university students varies and they shared gender, socio-economic status, and locus of control variables. Neuroticism, extraversion, perceived satisfaction of interaction with dates and parents, external locus of control, and perceived satisfaction of recreation activities were listed as the predictors of both subjective well-being and psychological well-being by Cenkseven (2004). In addition, the writer specified learned resourcefulness, perceived satisfaction of interaction with friends, and gender as the predictors of psychological well-being. In terms of psychological well-being Cenkseven (2004) pointed out that females scored higher than males.

Social support is a construct included in two studies about psychological well-being of university students. First, Aydın (1999) conducted a research of which one of the aims was to find out the relationship between how university students perceive the social support and their psychological well-being. Researcher concluded that social support, which is provided by family, did not have a significant effect on psychological well-being of university students in their first semester whereas social support provided by friends had a low but significant effect on psychological well-being. Then, Gençöz and Özlale (2004) also studied the effects of social support to psychological well-being of university students and concluded that “appreciation-related social support had a direct effect on psychological well-being” (p. 449).

Cirhinlioğlu (2006) studied the relationship among several personality characteristics, including shame proneness, religious orientations and self-construal, and demographic differences, such as gender and grade, and psychological well-being with university students. Psychological well-being was considered with both negative aspects, including depression, anxiety and negative self-perception, and positive aspects, including self-acceptance, ability to establish positive relationships and level of autonomy. The researcher stated that deficiency of social support or sharing, parental styles could be factors affecting psychological well-being. On the other hand, grade had no significant effect on psychological well-being. Cirhinlioğlu (2006) concluded that life satisfaction and psychological well-being will ascend if the personal characteristics are more consistent with cultural characteristics. In addition, the results showed that female students reported higher levels of positive relations with others, personal growth, self-acceptance and autonomy than males did but gender had no significant effect on depression, anxiety and negative self-perception.

## **2.2. Thinking Styles**

Before widening the concept of thinking styles and the approaches, style itself needs to be explained. The concept of style is emerged to be able to explain personal differences which can not be understood only by personality and ability differences, and cognitive styles were the first type of style studied to bridge the cognition and personality (Zhang & Sternberg, 2006). As seen style is neither cognition nor personality but the connection between them. Similarly, Zhang and Sternberg (2000) underlined that style is not the intellect itself but the way it is used. In other words, style is the bridge between skill and personality.

Thinking styles are encompassed by intellectual styles which also embrace cognitive styles, learning styles and problem-solving styles (Zhang & Sternberg, 2006). Intellectual style refers to an individual's propensity to process information and deal with life events. Zhang and Sternberg (2006), depending on prior studies of Sternberg, perceive thinking styles a wider concept than learning and cognitive styles since they can be applied to both academic and non-academic settings. On the other

hand it is stated that cognitive, learning and thinking styles are overlapping as they are used to process the same information; cognitive style is the ways an individual prefers to conceive information, learning style is how the individual prefers to learn that information whereas thinking style is the preference of the individual how to think about the information both during and after learning process.

In conceptualizing the thinking styles literature, there are four studies remarkable; which are Curry's onion model (1983), Miller's cognitive styles (1987), Riding and Cheema's two dimensional style and learning strategies (1991) and Sternberg's theory of mental self-government (1997) (Buluş, 2005). This study focuses on the last theory, Sternberg's theory of mental self-government, which introduces the thinking levels as a dimension of thinking styles.

### **2.2.1. Theory of Mental Self-Government**

Sternberg (1997) introduced the theory of mental self-government suggesting that how governments are managed is a reflection of how individuals manage their own thinking. Sternberg stated that individuals did not have a style but a profile of styles and to be successful one's preferred styles, abilities and environmental demands needs to match. Researcher emphasized the mismatch between styles and environments causing conflict between couples, students and teachers or employers and employees. Since the essence is the true match between styles, abilities and environmental demands, individuals could arrange the tasks they face or transform the style they prefer. In other words, styles can be modified or the efficient style can be adopted for the specific situation (Sternberg, 2009). This modification is also proven by research; Zhang (2001) stated that thinking styles are at variance due to age, gender and socioeconomic status and added number of hobbies, job, travel and leadership experience as other factors affecting thinking styles.

Thinking styles are not polarized but multidimensional. Therefore the theory of mental self-government provides a profile of how an individual thinks (Fer, 2005; Zhang, 2000; Zhang & Sternberg, 2006). In addition, Sternberg (2009) clarified that styles are variable across tasks and situations as well as the valued styles are changeable across tasks, situations and values of the environment. In other words,

individuals can prefer internal thinking for a specific task whereas for another task they can prefer external style, moreover global thinking will be valued for a situation but for the same situation in another location local thinking will be valued. Sternberg (2009) explained how individuals develop their own profile of styles via socializing, usually from their role models, but still styles can be taught. In addition flexibility of styles was stated as being an important characteristic for individuals. Sternberg (2009) formulated being satisfied and successful with the match between the requirements of the environment and the preferred styles of individuals but unfortunately, finding a job or a spouse whose requirements and styles are matching is not possible all the time for everyone. Therefore, individuals need to be flexible, open to adapt own styles to the requirements or adopt the required styles of the environment.

#### **2.2.1.1. Dimensions of the Theory of Mental Self-Government**

The theory of mental self-government defines 5 dimensions, which are functions, forms, levels, scopes and leanings, and 13 thinking styles grouped under these dimensions (Fer, 2005; Kao et al., 2007; Sternberg, 2009; Zhang, 2000; Zhang & Sternberg, 2006).

First dimension, which is functions, refer to the individual preference of creating and assessing ideas, and performing rules. Functions include legislative, executive and judicial styles (Kao et al., 2007; Sternberg, 2009). An individual preferring legislative style is characterized by being creative, innovative and planned as well as enjoying to follow own way and generate new alternative solutions to traditional ones (Buluş, 2005; Fer, 2005; Sternberg, 2009). The next style of this dimension is executive style. This style is distinguished by the preference to follow given instructions and rules, need for clear guidelines and be organized (Buluş, 2005; Fer, 2005). The last style included in functions dimension is judicial style. Individuals who choose judicial style focus on evaluating others, analyzing others' products and compare work, product or ideas of others (Fer, 2005; Sternberg, 2009).

The second dimension of mental self-government theory is forms which defines the styles in terms of goal-setting and self-management (Kao et al., 2007). One of four

style grouped under forms is monarchic. Monarchic style is characterized by focusing on one task at a time, matching each problem with a certain solution while ignoring other possible ways and being perfectionist (Fer, 2005; Saracaloğlu et al., 2008; Sternberg, 2009). The other style of this dimension is hierarchical style which refers to preference to prioritize tasks, assign attention accordingly and be systematic problem-solvers with prosperous time management skills (Buluş, 2005; Sternberg, 2009). Oligarchic style is the third style included in forms dimension. Individuals who prefer oligarchic style usually have trouble with time management since they prefer to pay attention among non-prioritized tasks at the same time (Fer, 2005; Sternberg, 2009). Anarchic style is the fourth style associated with forms dimension and anarchic style is distinguished by preferring to focus on tasks without any systematic approach, in other words randomly selecting the task to work on, avoid rules and instructions as well as desire to have flexibility (Fer, 2005; Sarı & Sünbül, 2004).

Levels are considered as the third dimension of mental self-government theory and classify the preference of individuals to deal with problems in detail or as a whole. Levels include global and local styles. Global style is characterized by concentrating on the big picture, ignoring details, preferring abstractness, enjoying conceptualizing, generalization and thinking (Sternberg, 2009; Zhang & Sternberg, 2001). Whereas local style identify focusing on details, preferring concreteness, avoiding conceptual analysis and experiencing difficulty in distinguishing important from unimportant (Fer, 2005; Sternberg, 2009).

The other dimension is scopes referring to the preference of being alone or belonging to a group (Kao et al., 2007). Individuals with internal style prefer working independently, being goal-oriented and introverted, whereas individuals preferring external style are distinguished by feeling more comfortable when working with a group, developing interpersonal relationships, being extroverted and interdependent (Buluş, 2005; Fer, 2005; Sternberg, 2009; Zhang & Sternberg, 2001).

The fifth dimension defined in theory of mental self-government is leanings dealing with the individual preferences of requirement of originality and need for existing

rules. Leanings include liberal and conservative styles. Liberal style is identified by appreciating novelty and ambiguity, tracing new alternatives while disregarding instructions (Buluş, 2005; Zhang & Sternberg, 2001). On the other hand conservative style is characterized by adherence of existing rules and procedures, avoiding ambiguity and resistance to novelty (Buluş, 2005; Zhang & Sternberg, 2001).

Besides the dimensions of the theory, Zhang and Sternberg (2006) classified intellectual styles, which encompass thinking styles, into three types. Type I styles are perceived more positive and adaptive whereas Type II styles are more negative and less adaptive. The styles categorized under Type I or Type II are considered as being value-laden as they are evaluated as being more or less adaptive and positive or negative. Whereas Type III styles are value differentiated since they are neither positive nor negative but adaptability depends on the requirements of a task and situation. Based on this general classification researchers grouped thinking styles; Type I thinking styles include the legislative, judicial, hierarchical, global, and liberal styles, Type II thinking styles include the executive, local, monarchic, and conservative styles, and Type III styles include the anarchic, oligarchic, internal, and external styles. Type I thinking styles are defined as more creativity-generating, Type II are characterized by a norm-favoring tendency, while depending on the demands of the specific task Type III may reveal the characteristics of both Types I and II styles.

### **2.2.2. Research on Thinking Styles**

Thinking styles are frequently studied in the educational contexts. A recent example is the study conducted by Zhang (2008a). Zhang (2008a) examined the teachers' thinking styles and the consistency between thinking styles and teaching styles, and concluded that the teaching styles can be predicted due to the thinking styles of the teachers. In another study, Zhang and Sachs (1997) found that natural science and technology teachers in Hong Kong prefer global thinking more frequently than social sciences teachers do, similarly Lam (2000) revealed that art teachers in Hong Kong score higher on local thinking than science teachers, whereas Sternberg and

Grigorenko (1995) have found that science teachers in USA have tendency for local thinking than humanities teachers do (as cited in Zhang & Sternberg, 2006).

Within the educational context, Zhang introduced several studies analyzing thinking styles and development of individuals. Zhang (2008b) concluded that thinking styles strongly associated with identity development but also the thinking styles are predictors of identity development as a result of a study to investigate the relationship between these two constructs among Chinese students. Another study of Zhang (2002a) focused on the thinking styles and the psychosocial development of college students and concluded that wider range of thinking styles is a predictor of the sense of purposefulness. Cognitive development of students was also studied and the results proved that wider range of styles are used by students whose cognitive development levels are higher compared to the students whose cognitive development levels are lower (Zhang, 2002b). Zhang's another study is one of the rare studies about the relationship between thinking styles and emotions. Zhang (2008c) considered emotions as one of the dimension in Chickering's (1969) psychosocial development theory. The results indicated "thinking styles were associated with emotions and also thinking styles had predictive power for emotions beyond age" (p. 497). When the relationship between thinking styles and ability to deal with emotions are examined Type I (legislative, judicial, hierarchical, global, and liberal) styles are found to be positively associated with the ability to deal with emotions. In addition, the anarchic and external styles, which are Type III styles, are also positively related with the ability to cope with emotions. The researcher also checked which the thinking styles can be considered as predictors of which emotions and concluded that depression is positively predicted by the hierarchical style but negatively predicted by the oligarchic style, happiness is positively predicted by the external and hierarchical styles but negatively predicted by the anarchic style, attraction is positively predicted by the judicial styles.

The effect of thinking styles to vocational choices is another subject studied. Kaufman (2001) studied on a population composed of student journalists and student creative writers and found that journalists scored higher on executive thinking than creative writers did, whereas creative writers preferred legislative thinking than

journalist did. Another study conducted by Hommerding (2002) studied thinking style profiles of library directors and the results revealed that the most preferred styles are legislative, oligarchic and global while judicial, hierarchic, anarchic and local styles are least preferred.

A study out of the educational context was conducted by Kao and colleagues (2007). Researchers studied on indentifying the effect of thinking levels (global vs. local) on the internet search habits of users in order to improve search engine architecture. What they found was parallel to the characteristics of global and local thinking styles. Findings showed that high global thinkers search for every possible issue related and skim the search results while high local thinkers focus on a topic, look for explicit answers and explore that topic in detail.

### **2.2.3. Studies about Thinking Styles of University Students in Turkey**

Similar with a great amount of thinking styles studies, studies conducted in Turkey also focused on educational contexts. Palut (2008) conducted a study to find out the relationship between thinking styles and level of externality of female preschool teachers. The results revealed a close correspondence between thinking styles and level of externality while showed a negative association between level of externality and legislative, judicial, hierarchic, global, and liberal thinking styles. Palut (2003) also studied the thinking styles of elementary teachers and defined teacher's thinking styles both in personal and teaching environments. The results of the study showed that male teachers prefer legislative, global and internal thinking styles compared to females but in teaching environments male teachers prefer local thinking styles.

Education is the branch of science which is most interested in thinking styles. Therefore several studies are available of which undergraduate students of the faculty of education are the samples. One of these studies was conducted by Saracaloğlu, Yenice and Karasakaloğlu (2008) to determine and compare the thinking style profiles of students registered to elementary education department in Adnan Menderes University. Researchers studied the relationship between academic achievement and thinking styles. The most preferred thinking styles are found to be legislative, hierarchic, executive and judicial where as least preferred styles are

liberal and local. If the findings are examined in order to find the most preferred styles of five dimensions (functions, forms, levels, scopes and leanings) the profile seems to be legislative, hierarchic, global, external and conservative. When the preferred styles were compared for major departments, science education students show a tendency to think locally, whereas social sciences and primary school teaching students prefer global thinking. Gender was considered as another variable and both males and females prefer global thinking to local thinking but males think more globally compared to females. Buluş (2005) have conducted another study to determine the thinking styles profile of a similar sample with Saracaloğlu et al. in Pamukkale University. The results showed parallelism with the findings of the other study except for the leanings dimension. For this specific study, for the whole sample legislative, for especially forth-year students hierarchic styles are found to be positively related to academic achievement, in addition for the whole sample conservative and external, for especially first-year students local styles are negatively related to academic achievement. Buluş (2005) also examined the effect of the year at university on the thinking styles and stated that forth-year students prefer legislative style more compared to first-year students but prefer external style less than first-years. Gender is also considered as a variable and showed significant effect; males are more global, internal and conservative compared to females.

Another study was conducted by Fer (2007) to determine whether the thinking styles of student teachers differ due to gender, age, educational level, type of university attended and the field of study, and test the validity and reliability of Thinking Styles Inventory among Turkish teacher students. The results revealed in terms of gender variable that “male students scored higher on the monarchic and conservative styles than did females while females scored higher on the legislative and hierarchic styles” (p. 1506). When age variable was considered the younger students scored significantly higher on the legislative and liberal styles than older ones did. As the findings of the study was examined in terms of thinking levels (global vs. local), males prefer global style to local and males scored higher in global thinking compared to females. Interestingly there was no difference between global and local thinking styles preference of females. When age was considered the older the

students are, the more global they think and global thinking style is preferred to local thinking style.

Undergraduate students of the faculty of education constituted the sample of another study on how the thinking styles affect perceiving the learning environment and reacting to the environment and the study was conducted by Çubukçu (2004). Firstly, the thinking style preferences of the participants were examined and found that hierarchic and legislative thinking styles are preferred more than others whereas conservative style is the least preferred. When the findings are examined for levels dimension, global style is more preferable than local among faculty of education students. Next, gender was taken into consideration as a variable and legislative, monarchic and conservative styles showed significant variation. Major of the students was another variable and only internal thinking style appeared to be significantly differing due to the major. The last analysis was on how learning styles (visual, auditory and kinesthetic) and thinking styles were related and Çubukçu (2004) found that legislative thinking style is positively related with the kinesthetic learning while monarchic, local and internal thinking styles are negatively related with the visual learning, which is the most preferred type of learning. These findings are being supported by Balkıs and Işiker (2005) who conducted a study, on a sample of undergraduate students, to investigate the relation between thinking styles and personality types, and the effect of gender and major field of study on thinking styles. They concluded that the thinking styles and personality types corresponds and thinking styles change due to gender and major field of study.

## CHAPTER III

### METHOD

The methodological procedures used in the study are introduced in this chapter. The topics are the sample, the data collection instruments, the data collection procedure, the data analysis techniques and limitations. The method used for the selection of the participants and the characteristics of the sample are included in the first section. The instruments used in the study are explained in the second section. The data collection procedure is clarified in the third section. The following section introduces the statistical techniques for the analysis of the data. Finally, limitations of the study are presented.

#### 3.1. Participants of the Study

This study aimed to discover the thinking levels preferences and the effect of this preference on the psychological well-being of Turkish university students. Considering Middle East Technical University (METU) as an example, the data was collected from METU students.

The participants of this study were 372 (213 females, 159 males) undergraduate students enrolled in METU, during the spring semester of 2008-2009 academic year. For selection of participants convenient sampling method was used and instruments were conducted by researcher with the volunteered individuals from different departments.

The sample consisted of prep students (2.4%), freshmen (25.0%), sophomores (31.2%), juniors (18.3%) and seniors (23.1%), and the participants' age ranged from 18 to 31 ( $M = 21.58$ ,  $SD = 1.78$ ). In addition, the 35.2 percent of participants were students of Faculty of Arts and Sciences, 27.7 percent were students of Faculty of Engineering, 13.4 percent were students of Faculty of Education, 12.4 percent were students of Faculty of Economic and Administrative Sciences and 11.3 percent were

students of Faculty of Architecture. The academic achievement, according to the grade point averages (GPA), ranged from .43 to 4.00 ( $M = 2.64$ ,  $SD = .62$ ).

### **3.2. Data Collection Instruments**

The data of this study was obtained by Scales of Psychological Well-Being (SPW) (Ryff, 1989), the Thinking Styles Inventory (TSI) (Sternberg & Wagner, 1992) and a demographic information form.

#### **3.2.1. Demographic Information Form**

A demographic information form was prepared by the researcher to collect information about age, gender, department, grade and GPA characteristics of the participants (Appendix A).

#### **3.2.2. Scales of Psychological Well-Being**

Scales of Psychological Well-Being (SPW) is a structured, self-report instrument based on the 6 dimensions of psychological well-being and SPW was developed by Ryff (Ryff, 1989). An example of the scale is included in Appendix B. The 6 dimensions and the factors of the scales are autonomy, positive relationships with others, environmental mastery, self-acceptance, personal growth, and purpose in life. Each item is responded using a 6-point Likert scale (1-strongly disagree, 2-moderately disagree, 3- slightly disagree, 4- slightly agree, 5- moderately agree, 6-strongly agree) and the scale includes 39 reverse items. The total value of the responses for each item constitutes the score for the psychological well-being and similarly scores for each subscale are obtained. Therefore, the possible maximum and minimum scores depend on the number of items; possible maximum score of SPW is calculated as 6 times number of items while the possible minimum score equals to the number of items (Ryff, 2005).

The original version of SPW consisted of 20 items for each factor, and then Ryff introduced 3 length options for the scale, which are 14, 9 and 3 items for each dimension adding up to 84, 54 and 18 items, and suggested 84 or 54 items for academic studies. In addition to these versions of SPW, Dierendonck (2005)

proposed a new version consisted of 39 items selected among the 84 items of the original scale “on the basis of the highest item-total correlations (at least .30) on their scale and low cross-loadings on other scales ( $< .40$ )” (p. 636). Dierendonck stated that the results of the scale with 39 items are matching with the results of 84 items. Internal consistency values of Dierendonck’s 39 item scale were significantly higher than the values of other versions; reliability coefficient of sub-scales range between .72 (personal growth) and .81 (self-acceptance, autonomy and purpose in life).

Ryff (2005) reported internal consistency for each subscale of 84-item scale changing between .83 (autonomy) and .91 (self-acceptance). Though, Dierendonck (2005) reported lower values for internal consistency of the subscales; ranging between .77 (environmental mastery) and .90 (self-acceptance).

SPW was adapted to Turkish by Cenkseven (2004). Reliability studies indicated that Turkish version of the scale is reliable since the Cronbach’s Alpha coefficients for each scale was found to range between .74 (personal growth) and .83 (positive relationships with others) while .93 for total psychological well-being. Moreover, test-retest reliability coefficients for each subscale were found to be between .74 (personal growth and positive relationships with others) and .77 (autonomy and environmental mastery). In addition reliability for total psychological well-being was .84. Instrument-related validity findings were significant ( $p < .01$ ) indicating that the scale is valid; the coefficients of validity were -.62 with Rosenberg’s Self Respect Scale (1968), -.72 with Zung Depression Scale (1965), .60 with Life Satisfaction Scale (Diener et al, 1985), .52 with positive subscale of Positive and Negative Emotions Scale (Watson et al, 1988) and -.52. with negative subscale of Positive and Negative Emotions Scale (Watson et al, 1988).

For this study, the scale suggested by Dierendonck (2005) was used The Cronbach’s Alpha for SPW (39 items) was found to be high ( $\alpha = .90$ ) according to the results of the data collected from the sample of the study ( $N = 372$ ). In addition for the internal consistency test of the scale, split half method was used and correlation between forms was found to be .84 which implies that the scale is internally consistent.

### **3.2.3. Thinking Styles Inventory**

Thinking Styles Inventory (TSI) was developed by Sternberg and Wagner (1992). TSI is a 7-point scale, self-report questionnaire consisting of 5 factors and 104 items; 8 for each 13 subscales (legislative, executive, judicial, monarchic, hierarchic, oligarchic, anarchic, global, local, internal, external, liberal and conservative) (Fer, 2005; Zhang & Sternberg, 2000). An example of the scale is included in Appendix C. This instrument does not provide a total score but evaluate each subscale independently since Sternberg's theory states that each style is independent and the results of the instrument reveal a profile of the individual (Fer, 2005). The mean of the responses for the items of a subscale constitutes the score for that thinking style. Therefore, the possible maximum score of any thinking style is 7 while the possible minimum score is 1 (Sternberg, 2009).

The reliability studies revealed that the reliabilities of subscales range from .42 (monarchic) to .88 (external), with a .78 median (Zhang & Sternberg, 2000). In addition although reliability coefficients are generally satisfactory, local, monarchic and anarchic subscales were found to reveal lower levels of Cronbach's alpha coefficients, which were around .30s for anarchic subscale while .50s for both local and anarchic subscales (Zhang, 2003; Zhang, 2009). Therefore some items of these subscales were revised and the result of this revision was a dramatic improvement of local and monarchic subscales' coefficients (Zhang & Sternberg, 2006).

Internal validity studies revealed inconsistent results; some support the six-factor structure of the mental self-government theory whereas some suggest three- or four-factor structures for TSI. Zhang and her colleagues suggested a three-factor structure based on the types Zhang defined which are Type I (including legislative, judicial, hierarchical, global and liberal styles), Type II (including executive, local, monarchic and conservative styles) and Type III (includes anarchic, oligarchic, internal and external styles) (Zhang & Sternberg, 2006). On the other hand, the construct validity studies implied that the instrument is valid among U.S. students and TSI is validated against other instruments, some examples for these instruments are a standardized IQ

test, Myers-Briggs Type Indicator. Also TSI was found to be valid and reliable among Hong Kong students (Zhang & Sternberg, 2000).

Fer (2005) adapted unrevised version of TSI to Turkish and studied the validity and reliability of the scale. The reliability study of Turkish version of TSI revealed that the alpha coefficient varies between .50 (monarchic) and .89 (conservative) for 13 subscales and the subscale correlation coefficient ranges from .35 (monarchic) to .88 (conservative). For global thinking subscale alpha coefficient and correlation coefficient were found to be .77 and .48 relatively, while for local thinking the coefficients were .71 and .40, relatively as well. In addition the average of test-retest reliability of subscales was .72, therefore Turkish version of TSI was considered as reliable. Fer (2005) concluded that the study reached a reliable and valid instrument although the factors of the Turkish version are different from other cultures' factors. Later, Fer (2007) stated in another study that internal consistencies reliability of subscales varies between .61 (monarchic) and .91 (liberal) and the test-retest reliability of subscales ranged from .63 (oligarchic) to .78 (external). In addition, Fer (2007) found that Cronbach alpha for global and local thinking subscales were .77 and .71 relatively, and test-retest reliability of these subscales were .75 and .71. Although Fer (2005) could not conclude that the items are grouped under five factors, latter study divulged that "construct validity of the inventory addressed 13 subscales under the five dimensional constructs with 104 items" (p. 1488). Fer (2007) considered the findings of latter study sufficient for the purposes of research.

For this study, only global and local thinking subscales were conducted, which added up 16 items. For the global thinking scale Cronbach's alpha was found to be .79 and for the local thinking reliability coefficient was .81 when the scores of 372 participants were examined.

### **3.3. Data Collection Procedure**

To collect data, the instruments, which are 39-item SPW, 16-item TSI and demographic form, were administered to the students in Middle East Technical university campus during the spring semester of 2008-2009 academic year for 3 weeks with the permission of Ethical Committee. In order to reach students from

different departments, questionnaires were administered in department buildings, library and shopping center to volunteer students. Students were asked for participation after explaining the purpose of the study and they were given the questionnaire sets, including the explanation about the study, confidentiality issues, contact information of the researcher, demographic information form, Scales of Psychological Well-Being and Thinking Styles Inventory. The administration of the instruments took approximately 10 minutes.

### **3.4. Data Analysis Procedure**

For the current study, qualitative data was gathered and the quantitative data were analyzed both employing descriptive and inferential statistics using SPSS 15.0.

Before analyzing raw data, missing data analysis was done for the Scales of Psychological Well-Being and Thinking Styles Inventory; as a result the participants who have more than 1 missing response among 55 items (39 items of Scales of Psychological Well-Being and 16 items of Thinking Styles Inventory) were not included in the analysis. In the remaining data, missing responses were replaced with the mean of that item, since item mean substitution provided a very good representation of the original data in Likert-type scales (Downey & King, 1998).

Afterwards, scores of psychological well-being, global thinking and local thinking were calculated. To calculate the scores of psychological well-being, the sum of the responses to 39 (22 positive, 17 negative) items of Scales of Psychological Well-Being were computed for each participant. Higher values state higher levels of psychological well-being. The first 8 items (1-8) of the Thinking Style Inventory questioned global thinking whereas remaining items (9-16) questioned local thinking. Therefore averages of the items 1 to 8 were calculated as the score of global thinking and averages of the items 9 to 16 were computed as the score of local thinking. Higher averages state the greater tendency of the participants to the evaluated thinking style.

Subsequently, means, standard deviations and frequencies were computed for the scores and responses of demographic information form. Global and local thinking

scores were divided into two groups from the medians, which were 4.13 for both scales, to label the values as high or low levels.

In the final step of the data analysis, 2x2x2 ANOVA design was held to find out how gender (male-female) and the global (high-low) and local thinking (high-low) levels differ on dependent variable which is psychological well-being. According to the results of three-way ANOVA, independent samples t-test and one-way ANOVAs were held. In addition, to find the differences between thinking levels due to gender additional one-way ANOVAs were computed.

Furthermore, age, grade and GPA variables were also analyzed for their correlation but no significant correlation was found among these demographic variables and thinking styles and psychological well-being. Therefore, age, grade and GPA were not included in the main design of statistical analysis.

### **3.5. Limitations**

The present study has some limitations. First, the sample included students in the campus of Middle East Technical University (METU). Although departments and the grades of participants varied, considering the characteristics of METU students, the results of the study should be treated cautiously while deriving conclusions about undergraduate students attending other universities. Second, since the data was collected via self-report instruments, honesty and social desirability contributing the participants' responses are inevitable.

## CHAPTER IV

### RESULTS

In this chapter, results of the study are presented. In the first section, the results of the descriptive statistics including means and standard deviations regarding to psychological well-being, global and local thinking scores of the sample are presented. In the second part, the results of three way ANOVA which was performed to examine the difference between global and local thinking levels and gender of participants regarding to their psychological well-being scores are introduced. The determination of the difference between females and males regarding to global and local thinking scores are also covered in the second part.

#### 4.1. Descriptive Statistics of Variables

The means and standard deviations of the scores of the Scales of Psychological Well-being (SPW) and thinking styles instrument including global thinking and local thinking were presented in Table 4.1.

Table 4.1

*Means and Standard Deviations of the Variables*

Variables	M	SD	Min	Max
Psychological Well-being	168.32	21.33	99.00	218.00
Global Thinking	4.16	.94	1.00	6.63
Local Thinking	4.10	1.00	1.00	6.63

The descriptive statistics revealed that the mean value for participants' psychological well-being scores was 168.32 with a standard deviation of 21.33. Moreover, scores varied between 99 and 218, in a scale of which the possible minimum score is 39 and the possible maximum score is 234.

On the other hand, statistical results of global thinking scores showed that the mean of global thinking was 4.16 ( $SD = .94$ ). In addition, the mean of local thinking scores

of the participants was 4.10 and standard deviation was 1.00. Both global and local thinking scores varied between 1.00 and 6.63. The attainable maximum score of Thinking Styles Inventory is 7 where the attainable minimum is 1.

#### **4.2. Results of ANOVA Regarding Psychological Well-being, Global Thinking, Local Thinking and Gender**

In order to investigate the differences between global thinking levels, local thinking levels and gender regarding to psychological well-being, Univariate ANOVA was held. The first research question tested was the existence of a significant difference in psychological well-being scores between the participants scoring higher than the median and scoring lower than the median in global thinking scale. The second research question was determination of a significant difference in psychological well-being scores between the participants scoring higher and lower than the median of local thinking scale. Testing existence of any significant difference in psychological well-being between males and females was the third researched question. The fourth research question addressed the existence of any significant difference between global thinking scores of males and females. The fifth research question tested whether there was a significant gender difference on local thinking scores.

Before performing ANOVA, assumptions of the test, which are independence of observation, normality and homogeneity, were checked. For the independence of observation assumption, is assured by the design of the study in which, each participant answered the questionnaires once and independent of any other participant. For the second assumption of ANOVA, skewness and kurtosis values were examined to check the normality of dependent variable. Results revealed that, for psychological well-being scores, statistics were  $-.30$  and  $-.05$  relatively. These values remain in between the range of  $-1$  and  $+1$ , which is an acceptable range (Pallant, 2007) for the normality range for ANOVA. Finally, Levene's test of equality of error variances was examined. The test did not reveal a significant result ( $p > .05$ ), which shows that the homogeneity assumption was satisfied.

#### 4.2.1. Psychological Well-being, Global Thinking, Local Thinking and Gender

In order to determine whether any difference in psychological well-being among global thinking, local thinking and gender exists, three-way ANOVA was held since there were three independent variables. Table 4.2 presented the interaction effect results of variables retrieved from ANOVA.

Table 4.2

*The Interaction Effects of Global Thinking, Local Thinking and Gender*

	F	Sig.	Partial Eta Squared
Global Thinking * Local Thinking	6.48	.01	.017
Global Thinking* Gender	.49	.48	.001
Local Thinking* Gender	.42	.52	.001
Global Thinking * Local Thinking * Gender	3.35	.07	.009

The interaction effects except the interactions between global and local thinking levels were not significant. The results revealed that the interaction between global and local thinking levels had a significant effect on psychological well-being ( $F(1, 364) = 6.48, p < .05$ ). Since one of the interaction effects were significant, additional analysis was needed in order to explore this relationship and analysis of simple effect was held (Pallant, 2007). The data was split into two groups according to the global thinking levels and independent samples t-test, since local thinking has two levels, was held to find out any differences between low and high levels of local thinking on psychological well-being. The results of independent samples t-test, in which global thinking levels was low, were presented in Table 4.3.

Table 4.3

*The Results for Independent Samples t-Test between Levels of Local Thinking on Psychological Well-being When Global Thinking Level is Low*

	t	df	Sig. (2-tailed)	Mean Difference
Equal variances assumed	-3.14	197	.002	-9.33
Equal variances not assumed	-3.10	167.47	.002	-9.33

An independent t-test was conducted in order to compare psychological well-being scores for low and high levels of local thinking, when global thinking level is low. Since Levene's test for equity of variances result was not significant, equal variances assumed and related values were examined. There was a significant difference between low ( $M = 162.77$ ,  $SD = 21.67$ ) and high ( $M = 172.10$ ,  $SD = 19.92$ ) levels of local thinking ( $t(197) = -3.14$ ,  $p < .05$ ) on behalf of high level of local thinking. The magnitude between means (mean difference =  $-9.33$ , 95 % CI:  $-15.19$  to  $-3.47$ ) was small (eta squared =  $.04$ ) (Cohen, 1988, as cited in Pallant, 2007).

The results of independent samples t-test, which was computed to determine any differences between high and low levels of local thinking in terms of psychological well-being when global thinking levels was high, were presented in Table 4.4.

Table 4.4

*The Results for Independent Samples t-Test between Levels of Local Thinking on Psychological Well-being When Global Thinking Level is High*

	t	df	Sig. (2-tailed)	Mean Difference
Equal variances assumed	.56	171	.578	1.92
Equal variances not assumed	.56	126.694	.574	1.92

An independent t-test was conducted in order to compare psychological well-being scored for low and high levels of local thinking, when global thinking level is high. The Levene's test for equity of variances revealed that equal variances assumed and related values were examined. There was no significant difference between low ( $M =$

169.12,  $SD = 21.90$ ) and high ( $M = 167.20$ ,  $SD = 21.22$ ) levels of local thinking ( $t(171) = .56$ ,  $p > .05$ ). The magnitude between means (mean difference = 1.92, 95 % CI: -4.88 to 8.73) was very small (eta squared = .002) (Cohen, 1988, as cited in Pallant, 2007).

After analyzing the significant interaction effect, the main effects of global thinking, local thinking and gender were examined and represented in Table 4.5.

Table 4.5

*The Main Effects of Global Thinking, Local Thinking and Gender*

	F	Sig.	Partial Eta Squared
Global Thinking (Categorized)	.57	.450	.002
Local Thinking (Categorized)	3.88	.050	.011
Gender	7.45	.007	.020

The results of the ANOVA revealed that the main effect of global thinking on psychological well-being was not significant ( $F(1, 364) = .57$ ,  $p > .05$ ). Similarly, there was no significant main effect of local thinking on psychological well-being ( $F(1, 364) = 3.88$ ,  $p > .05$ ). On the other hand, the main effect of gender on psychological well-being was significant ( $F(1, 364) = 7.45$ ,  $p < .05$ ). Although the ANOVA showed that the means of males ( $M = 165.62$ ;  $SD = 22.48$ ) and females ( $M = 170.33$ ;  $SD = 20.24$ ) were significantly different, the effect size was small to modest (Cohen, 1988, as cited in Pallant, 2007); the partial Eta squared value was just .020, which implies that gender by itself accounted for only 2 percent of the overall variance of psychological well-being.

#### **4.2.2. Psychological Well-being and Global Thinking**

Although three-way ANOVA revealed no significant difference between psychological well-being of high and low level global thinking, one-way ANOVA was held to test the difference between two groups (high and low) of global thinking scores. Table 4.6 presented the results of ANOVA.

Table 4.6

*The Results of ANOVA Psychological Well-being and Global Thinking*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.20	1	5.20	.011	.92
Within Groups	168762.62	370	456.12		
Total	168767.82	371			

The results supported that no significant difference exists between psychological well-being of high level global thinking ( $M = 168.44$ ,  $SD = 21.62$ ) and low level global thinking ( $M = 168.21$ ,  $SD = 21.13$ ) ( $F(1, 370) = .01$ ,  $p > .05$ ).

**4.2.3. Psychological Well-being and Local Thinking**

One-way ANOVA was held to test the difference between two groups (high and low) of local thinking scores. The results of ANOVA (Table 4.7) approved non-existence of a significant difference between high ( $M = 170.41$ ,  $SD = 20.45$ ) and low ( $M = 166.42$ ,  $SD = 21.97$ ) levels of local thinking in terms of psychological well-being ( $F(1, 370) = 3.27$ ,  $p > .05$ ).

Table 4.7

*The Results of ANOVA Psychological Well-being and Local Thinking*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1480.24	1	1480.24	3.27	.07
Within Groups	167287.58	370	452.129		
Total	168767.82	371			

**4.2.4. Psychological Well-being and Gender**

Since three-way ANOVA revealed a significant difference between psychological well-being of males and females, one-way ANOVA was held to test the difference between two groups and determine which group reported higher psychological well-being. The results of ANOVA were presented in Table 4.8.

Table 4.8

*The Results of ANOVA Psychological Well-being and Gender*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2023.37	1	2023.37	4.49	.04
Within Groups	166744.46	370	450.66		
Total	168767.82	371			

Statistical analysis revealed once more that there was a significant difference between psychological well-being of females and males ( $F(1, 370) = 4.49, p < .05$ ). In addition the difference was found to be on the behalf of females, signifying that females reported higher psychological well-being than males did.

**4.2.5. Global Thinking and Gender**

In order to determine whether there is a difference between the levels of global thinking of males and females, one-way ANOVA was held. Before the performing the test assumptions of ANOVA was checked since the dependent variable of the test was changed to global thinking. Skewness and kurtosis values were examined to check the normality of dependent variable and they were .21 and -.13 relatively. These values fall within the range of -1 and +1, which is an acceptable range (Pallant, 2007) for normality. Levene's test of equality of error variances conducted and results suggested that the homogeneity assumption was also satisfied ( $p > .05$ ). Table 4.9 presented the results of ANOVA.

Table 4.9

*The Results of ANOVA Global Thinking and Gender*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.78	1	7.78	9.03	.003
Within Groups	318.77	370	.86		
Total	326.55	371			

There was a significant difference between global thinking levels of females ( $M = 4.04, SD = .88$ ) and males ( $M = 4.32, SD = .98$ ) according to the results of ANOVA ( $F(1, 370) = 9.03, p < .01$ ). Moreover, the results revealed that males reported higher levels of global thinking than females did, particularly males preferred global thinking more than females did.

#### 4.2.6. Local Thinking and Gender

In order to determine whether there is a difference between the levels of local thinking of males and females, one-way ANOVA was held. Beforehand, to check the normality of dependent variable skewness, which was  $-.09$ , and kurtosis, which was  $-.51$ , values were examined and since these values are within the acceptable range of  $-1$  and  $+1$  normality assumption was satisfied (Pallant, 2007). In addition, Levene's test of equality of error variances showed that the homogeneity assumption was also satisfied ( $p > .05$ ).

Table 4.10

*The Results of ANOVA Local Thinking and Gender*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.01	1	.01	.006	.94
Within Groups	376.18	370	1.02		
Total	376.18	371			

The results of ANOVA ( $F(1, 370) = .01, p > .05$ ), which were represented in Table 4.10, revealed that there was no significant difference between local thinking levels of females ( $M = 4.10, SD = 1.00$ ) and males ( $M = 4.11, SD = 1.02$ ).

## CHAPTER V

### DISCUSSION

This chapter presents the discussion, implication and recommendations of the study based on the findings of statistical analysis. First section presents the discussion about the results of this study. In the second section recommendations and implications for future research are proposed.

#### 5.1. Discussion

The purpose of the study was to investigate how gender, high and low levels of global and local thinking affect psychological well-being. In order to find out the difference between the groups on psychological well-being, 2x2x2 ANOVA, was held.

Before the results of ANOVA, the findings of descriptive analysis of psychological well-being, global thinking and local thinking scores of participants are discussed. The mean of psychological well-being scores of the participants of this study are 168.32 with a standard deviation of 21.33 on a scale of which the maximum score could be 234. Cenkseven (2004) reported that the mean of retrieved in her study was 380.29 and standard deviation is 44.01 on the 84-item version of Scales of Psychological Well-Being. In order to compare the means, the corresponding value of the mean of Cenkseven's study in a 39-item scale was computed; the mean of the Cenkseven's study would be approximately 176.56 if 39-item scale was used with the maximum value of 234. When these means are compared, the mean retrieved in this study is lower than the mean reported in Cenkseven's study. The gender distributions of samples are different, which could be a reason for the difference between the means of psychological well-being scores, since it is expected males to report higher levels of psychological well-being (Mills et al., 1992; Roothman et al., 2003). The percentage of males in Cenkseven's sample is higher than the percentage of females while the percentages in this study are reversed. In addition, the students

participated in these studies are from different universities. Therefore, their characteristics would be different due to the requirements of the universities, which could affect the level of psychological well-being of students.

Moreover, the mean of global thinking scores is found to be 4.16 and standard deviation is .94. On the other hand, mean of the local thinking scores is 4.10 where the standard deviation is 1. Fer (2007) reported that the mean of the global scores is 4.50 and the standard deviation is .97, in addition mean of the local thinking scores is 4.44 where the standard deviation is .90. In addition Saracaloğlu and colleagues (2008) stated that the mean of global thinking scores for their sample was 4.12 with a standard deviation of 1.19 and the mean of local thinking scores was 3.84 and the standard deviation was 1.12. When these results are compared, the means of the present study is lower than the means of Fer's study but higher than Saracaloğlu et al.'s. The differences between the participants of these studies will be the reason for the difference between means. Most of the participants of the study conducted by Fer were graduate students, while the participants of the other two studies were undergraduate students. Thus, the scores gathered from a sample constituted from mostly graduate students are higher than the scores of undergraduate students. On the other hand, the means of global thinking styles are higher than the means of local thinking scores in all three studies. This similarity will represent a common characteristic for Turkish university students, which is a tendency to global thinking, focus on the big picture rather than the details.

The analysis of variances pointed out a significant interaction effect on psychological well-being; the interaction between global and local thinking scores had a significant effect on psychological well-being scores. In order to clarify which condition of this interaction has a significant difference, independent samples t-test was computed. The results of independent samples t-test revealed that when global thinking level is low, a significant difference on psychological well-being scores of high and low levels of local thinking exists and the difference is on behalf of high level of local thinking. This finding implies that individuals who prefer low levels of global thinking and high levels of local thinking report higher levels of psychological well-being compared to the individuals who prefer low level of both global and local

thinking. On the other hand, when global thinking level is high, there is no significant difference between high and low levels of local thinking in terms of psychological well-being although the mean of low level local thinking is higher than the mean of high level of local thinking. These results can be interpreted as if the global thinking level is high; the level of local thinking has little effect on psychological well-being. The reason for that could be the values of the culture; it seems global thinking to be the style valued and commonly preferred in Turkish culture depending on the higher scores in global thinking (Fer, 2007; Saracaloğlu et al., 2008). Nevertheless, if the global thinking level is low, levels of local thinking signify the difference; high levels of local thinking results in higher level of psychological well-being. Moreover, when the psychological well-being means are compared the lowest value belongs to low levels of both global and local thinking, which indicate that group of individuals do not attend to neither individual trees nor the whole forest. In addition, psychological well-being scores of participants who reported high levels of both local and global thinking is lower than the scores of participants who reported high level of either global or local thinking. When the individual has a preferred way of processing information, that individual would know how to progress. It can be concluded that individuals feel better if at least one of the styles is highly preferred. The reason for this result could be the apparent characteristics, which eases individual's decisions and approach towards a task. Individuals who are low on both thinking styles experience uncertainty and it is accepted both as a powerful stressor and a component of stress (Rastegary & Landy, 1993; Greco & Roger, 2003). On the other hand, individuals who reported high scores on both styles experience indecisiveness which is found to be related with neuroticism and obsessive-compulsive complaints but correlated with life satisfaction negatively (Jackson, Furnham, & Lawty-Jones, 1999; Rassin & Muris, 2005). Therefore, individuals experiencing uncertainty or indecisiveness because of their preferences also experience stress and neuroticism which results in lower levels of psychological well-being.

Besides the interaction effect, the results of three-way ANOVA revealed that there is no significant difference on psychological well-being between high and low levels of neither global thinking nor local thinking. Depending on the related literature

(Kadivar & Shokri, 2008; Zhang, 2006; Zhang & Postiglione, 2001; Zhang & Sternberg, 2006) it was hypothesized that there will be a difference among the reported levels of psychological well-being of these groups on behalf of high scorers of global thinking but the statistical results rejected this hypothesis. This finding contradicts with Zhang's (2006) results about the relationship between neuroticism and local thinking and the results of levels-of-focus studies, as Gasper and Clore (2002) found that happier individuals prefer to see the big picture. The cultural differences and the issues which participants concentrated on can be the reason of the conflict between findings of the latter studies and this one. First, since thinking styles are socialized, individual's preferred styles are affected from the characteristics of the culture they grow up and live in. According to the expectations and the appraised styles of the culture, individuals formulate their preferred styles. Neither of the studies which the hypothesis was based on is conducted with Turkish samples and Turkish samples reported a tendency to higher levels of global thinking. On the other hand, since the participants are university students, through their education they are expected to pay attention to details and detailed works are appraised. While participants were answering the questionnaires, they may be focused on their education experiences, such as assignments and projects, which require them to adapt themselves to local thinking. If they can match the requirements of the environment and their styles, they are expected to report higher levels of psychological well-being. Additionally, the adjustability and adaptability of the styles will be another reason for this result. Sternberg (2009) stated that often individuals try to arrange the tasks due to their styles or arrange their styles due to situations and added that styles are socialized and can be thought. So styles are not rigid; people can learn to modify their styles for a better adaptation. Therefore, it can be concluded that undergraduate students who are considered as young adults, experienced and learned which style to prefer on which situation resulting that thinking level does not affect the overall psychological well-being.

Furthermore, it was found that psychological well-being significantly varies only between female students and male students but gender accounted for only 1.8 percent of psychological well-being. The difference between females and males was on the behalf of females, in other words females reported higher levels of psychological

well-being than males did. This conclusion supports the findings of Cenkseven (2004) and Cirhinlioğlu (2006). Cenkseven studied on a sample composed of Turkish university students and found that female students reported higher levels of psychological well-being than males did and emphasized that literature introduced that females score higher on positive relations with others and personal growth subscales. Cirhinlioğlu agreed that females reported higher levels of positive relations with others and personal growth subscales and added self-acceptance and autonomy subscales. In this present study, female students reporting higher levels of psychological well-being can be explained with differences in academic achievement and preference of local thinking. First, when GPA of females and males were compared, females reported significantly higher GPAs than males did. Therefore, females can be accepted as being more successful than males in academic context and expected to report higher psychological well-being than males. Although there was no significant difference between females and males on local thinking, females reported higher levels of local thinking more frequently than males did. This tendency to local thinking of females could be the second reason for the difference due to gender.

After three-way ANOVA, to determine the differences between females and males in global and local thinking, two one-way ANOVAs were held. The results showed that males prefer global thinking more than females did. As Zhang and Sternberg (2006) stated, this results matches with the stereotypical characteristics of males since they tend to focus on the big picture than details. In addition, this finding supports the results of the studies conducted on Turkish samples (Buluş, 2005; Fer, 2005; Palut, 2003; Saracaloğlu et al., 2008) which presents that Turkish male undergraduate students share the stereotypical characteristics stated by Zhang and Sternberg (2006). On the other hand, there were no significant difference between females and males in terms of local thinking. In addition, more females scored themselves as high local thinkers than as high global thinkers, but statistically it cannot be concluded that females prefer local thinking than males do. This contradicts the stereotypical characteristics of females as they are expected to prefer local thinking (Zhang & Sternberg, 2006). Once more, the detail focused requirements of university

environment will be the reason for the nonexistence of a difference between females and males in terms of local thinking.

## **5.2. Implications and Recommendations**

This study can be considered as an attempt to examine cognitive aspects of personality in terms of thinking styles affecting well-being. The results of statistical analysis revealed that although there was no significant difference between thinking levels regarding to psychological well-being, it was found that the interaction between thinking levels has a significant effect on psychological well-being. Statistical analysis revealed that the individuals whose global thinking level is high but local thinking level is low reported higher levels of psychological well-being compared to individuals whose both global and local thinking levels are high. In addition when the psychological well-being scores of individuals are compared, it was seen that individuals reported higher levels of psychological well-being also report high level of either global or local thinking than individuals reported either high or low levels of both thinking styles. In the light of these results, in counseling processes, determination of which style individual prefers could help counselors to work on adapting and changing the styles of individual. For instance, if the individual scores low in both global and local thinking scales, after defining the tendency of individual, with special exercises individuals can be guided to select one of the styles to resolve the negative outcomes of uncertainty. Similarly, with a counselee who scores high on both thinking styles, counselors could work on to decide one of them in order to decrease the level of indecisiveness and the negative consequences. By doing so, counselors would help counsees to relief and reduce stress as well as increasing the psychological well-being.

Although there was an interaction, between global and local thinking, effect on psychological well-being, the statistical results did not revealed any significant difference on psychological well-being between high and low levels of neither global thinking nor local thinking. This finding can be interpreted in the light of adaptable characteristic of thinking style as undergraduate students who are considered young adults learned the most effective style for specific life events. Therefore, neither

global thinking nor local thinking showed a significant effect on overall psychological well-being. To conclude, for university counselors, the thinking level of individuals does not need to be an issue to be worked on for psychological well-being. Still, defining the thinking level of an individual could help counselors to picture the portrait of the individual, to select a pathway and to adapt the counseling process to the style of individual. When the counseling process matches with one's style, the individual will feel more comfortable and to build rapport will be easier for the counselor.

Furthermore, the statistical analysis revealed a significant difference between psychological well-being scores of females and males. The difference was on behalf of females; in other words, females reported higher levels of psychological well-being. This result indicates that special attention and more counseling support are needed for males' psychological well-being.

For further research, special exercises which will be used to transform thinking styles in counseling processes can be developed. For gender differences, the factors generating the difference between females and males can be studied and according to the factors found, counseling applications, programs and exercises can be developed. In addition, including all thinking styles with a more diverse sample, including university students from other universities, will point out an effective profile of styles which apply to population of Turkish university students. Also, considering the adaptable characteristic of the styles, thinking styles can be studied for specific life events to find out the more preferable and adaptable styles for each event. As the more effective styles for a life event is specified, psychological counselors can work on changing the less effective style to a more effective one. In addition, it can be hypothesized that individuals need to experience and observe different situations and how different styles affect the resolution of that situation. Studying thinking styles with younger participants will introduce whether a need for help to simplify learning the more effective style process is required. In addition, a longitudinal study can be performed to examine the development and change of thinking styles of individuals over time.

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## APPENDICES

### APPENDIX A

#### DEMOGRAPHIC INFORMATION FORM

Bu çalışma, ODTÜ Eğitim Bilimleri Bölümü, Psikolojik Danışma ve Rehberlik Anabilim dalında Prof. Dr. Ayhan Demir danışmanlığında Yüksek Lisans Öğrencisi Nergis Ayşe Gürel tarafından yapılan "Düşünme düzeylerinin (bütünsel ve ayrıntısal) psikolojik iyi olma haline etkisi" başlıklı yüksek lisans tezi kapsamında yürütülmektedir.

Çalışmanın amacı, bütünsel ve ayrıntısal düşünmenin psikolojik iyi olma haline etkisi olup olmadığını incelemek, hangi düşünme stilinin psikolojik iyi olma halini olumlu yönde etkilediğini belirlemektir. Ayrıca yaş, cinsiyet, akademik başarı, bölüm ve sınıfa göre düşünme düzeyi ve psikolojik iyi olma hali incelenecektir.

Bu çalışmada veri toplamak için katılımcı bilgi formu, 16 maddelik Düşünme Stilleri Envanteri ve 39 maddelik Psikolojik İyi Olma Envanteri kullanılacaktır. Lütfen bütün sorulara cevap vermeye çalışınız.

Araştırma kapsamında elde edilen bulgular kimlik belirtilmeden grup olarak inceleneceğinden sizden kimliğinizi belirtecek bilgiler istenmemektedir. Elde edilen tüm bilgiler tamamıyla gizli tutularak yüksek lisans tezi kapsamında ve bilimsel yayınlarda kullanılacaktır. Çalışmaya katılım gönüllülük esasına dayanmaktadır ve uygulama sırasında herhangi bir nedenden ötürü kendinizi rahatsız hissederseniz soruları cevaplamadan ayrılmakta serbestsiniz.

Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz.

Çalışma hakkında daha fazla bilgi almak için Nergis Ayşe Gürel ile (Tel: 210 3571; E-posta: nergis@metu.edu.tr) iletişim kurabilirsiniz.

Yaş : \_\_\_\_\_

Cinsiyet : Kadın : \_\_\_ Erkek : \_\_\_

Bölüm : \_\_\_\_\_

Sınıf : \_\_\_

Genel Akademik Ortalamanız (GPA) :

## APPENDIX B

### PSİKOLOJİK İYİ OLMA ENVANTERİ

Aşağıda kendiniz ve yaşamınız hakkında hissettiklerinizle ilgili bir dizi ifade yer almaktadır.

Her bir cümleye katılma ya da katılmama durumunuzu en iyi şekilde gösteren numarayı işaretleyiniz. Lütfen doğru veya yanlış cevap olmadığını unutmayınız. Lütfen hiç boş madde bırakmayınız ve her madde için yalnızca bir rakam işaretleyiniz.

	Hiç katılmıyorum			Tamamen katılıyorum		
	↓			↓		
1. Genellikle yaşadığım durumlardan sorumlu olduğumu hissederim.	①	②	③	④	⑤	⑥
2. Geçmişte yaptıklarımı ve gelecekte yapacaklarımı düşündüğümde kendimi iyi hissederim.	①	②	③	④	⑤	⑥
3. Yaşamımı gözden geçirdiğimde, yaşamımdaki olayların sonuçlanış şekliyle memnunluk duyarım.	①	②	③	④	⑤	⑥
4. Birçok insanın görüşlerinin tersi olduğu zaman bile görüşlerimi ifade etmekten korkmam.	①	②	③	④	⑤	⑥
5. Günlük yaşamın talepleri karşısında genellikle kendimi mutsuz hissederim.	①	②	③	④	⑤	⑥
6. Genellikle her geçen gün kendimle ilgili daha fazla şey öğrendiğimi hissediyorum.	①	②	③	④	⑤	⑥
7. Genellikle kendimi güvenli ve olumlu hissederim.	①	②	③	④	⑤	⑥
8. Sorunlarımı paylaşabileceğim az sayıda yakın arkadaşım olmasından dolayı çoğunlukla kendimi yalnız hissederim.	①	②	③	④	⑤	⑥
9. Diğer insanların benimle ilgili düşünceleri hakkında endişe duyarım.	①	②	③	④	⑤	⑥
10. Günlük yaşamımdaki sorumlulukların çoğunun üstesinden gelmekte oldukça başarılıyım.	①	②	③	④	⑤	⑥
11. Yaptığım şeylerde yeni yolları denemeyi istemem. Yaşamım bu şekilde güzeldir.	①	②	③	④	⑤	⑥
12. Yaşamımın yönünü ve amacını belirledim.	①	②	③	④	⑤	⑥
13. Fırsat olursa kendimle ilgili değiştirmeyi düşündüğüm birçok şey var.	①	②	③	④	⑤	⑥

14. Kendim ve yaşam hakkındaki düşüncelerime meydan okuyan yeni deneyimler yaşamamın önemli olduğunu düşünürüm.	①	②	③	④	⑤	⑥
15. Kişiliğimin pek çok yönünden hoşlanırım.	①	②	③	④	⑤	⑥
16. Konuşmaya ihtiyacım olduğunda çevremde beni dinlemek isteyecek çok insan yoktur.	①	②	③	④	⑤	⑥
17. Güçlü fikirleri olan insanlardan etkilenmeye yatkınım.	①	②	③	④	⑤	⑥
18. Yaşadığım durumdan mutsuz olsaydım, onu değiştirmek için etkili önlemler alırdım.	①	②	③	④	⑤	⑥
19. Bir birey olarak yıllardır gerçekten ilerleme kaydetmediğimi düşünüyorum.	①	②	③	④	⑤	⑥
20. Yaşamda başarmaya çalıştığım şeylerle ilgili olarak akılcı davranma yetisine sahip değilim.	①	②	③	④	⑤	⑥
21. Arkadaşlıklarımın çok şey öğrendiğimi düşünüyorum.	①	②	③	④	⑤	⑥
22. Birçok yönden yaşamımdaki kazançlarıma ilişkin hayal kırıklığı hissediyorum.	①	②	③	④	⑤	⑥
23. Diğer insanların çoğunun benden daha fazla arkadaşı olduğunu düşünüyorum.	①	②	③	④	⑤	⑥
24. Gelecek için planlar yapmaktan ve onları gerçekleştirmeye çalışmaktan hoşlanırım.	①	②	③	④	⑤	⑥
25. Birçok açıdan kim olduğumla ve sürdürdüğüm yaşamla gurur duyarım.	①	②	③	④	⑤	⑥
26. Genel fikirlere ters düşse bile kendi görüşlerime güvenirim.	①	②	③	④	⑤	⑥
27. Zamanla bir birey olarak çok geliştiğimi düşünüyorum.	①	②	③	④	⑤	⑥
28. Kendim için yaptığım planları gerçekleştirmede etkinimdir.	①	②	③	④	⑤	⑥
29. Başkalarıyla çok sıcak ve güvenli ilişkilerim olmadı.	①	②	③	④	⑤	⑥
30. Tartışmalı konularla ilgili düşüncelerimi ifade etmek benim için güçtür.	①	②	③	④	⑤	⑥
31. Eğer ailem veya arkadaşlarım kararlarıma katılmıyorsa genellikle fikrimi değiştiririm.	①	②	③	④	⑤	⑥
32. Benim için yaşam devam eden bir öğrenme, değişme ve büyüme sürecidir.	①	②	③	④	⑤	⑥
33. Arkadaşlarıma güvенеbileceğimi biliyorum, onlar da bana güvенеbileceklerini bilirler.	①	②	③	④	⑤	⑥
34. Yaşamdaki amaçlarım benim için hayal kırıklığı yaratmaktan çok doyum kaynağı olmuştur.	①	②	③	④	⑤	⑥
35. Yaşamımda yaptığım seçimlerin başkaları tarafından nasıl değerlendirildiğini önemserim.	①	②	③	④	⑤	⑥
36. Yaşamımı beni tatmin edecek biçimde düzenlemekte zorlanırım.	①	②	③	④	⑤	⑥

37. Yaşamımda büyük gelişmeler ya da değişiklikler yapmayı denemekten uzun zaman önce vazgeçtim.	①	②	③	④	⑤	⑥
38. Kendimi başkalarının önem verdiği değerlerle değil, kendi önem verdiğim şeylerle değerlendiririm.	①	②	③	④	⑤	⑥
39. Zevklerime uygun bir ev ve yaşam tarzı oluşturabildim.	①	②	③	④	⑤	⑥

## APPENDIX C

### DÜŞÜNME STİLLERİ ENVANTERİ

Bu ölçek, problem çözme, proje, iş ya da işlemleri yürütme ve karar verme gibi durumlarda kullandığınız farklı stratejileri ortaya koymaya yöneliktir. Lütfen aşağıda verilen her bir durumu dikkatle okuyarak, okulda, evde ya da işte bu stratejilerin her birini ne derece kullandığınızı, diğer bir deyişle size ne kadar uygun olduğunu, size uyan rakamı işaretleyiniz. Lütfen, **hiç boş madde bırakmayınız ve her durum için yalnızca tek rakam işaretleyiniz.**

<b>1. Hiç bana uygun değil</b>	<b>2. Pek bana uygun değil</b>	<b>3. Çok az bana uygun</b>	<b>4. Biraz bana uygun</b>
<b>5. Bana oldukça uygun</b>	<b>6. Bana çok uygun</b>	<b>7. Mükemmel biçimde (Tamamen) bana uygun</b>	

**DİKKAT:** Lütfen aşağıdaki formu doldururken sözcükleri belirtilen anlamlarda kullanınız.

- Problem çözme, sorun çözme anlamında kullanılmıştır, matematik problemi değil.
- İş, çalışma, proje, durum, konu, şey gibi terimler, hem okulda, hem de okul dışında karşılaşılabileceğiniz her türlü durum/olay/olgu anlamında kullanılmıştır.

1	Detaylara <b>odaklanmayacağım</b> durum ve işleri tercih ederim.	①	②	③	④	⑤	⑥	⑦
2	Yapmam gereken işin detaylarıyla değil, genel etkileriyle ve sonuçlarıyla ilgilenirim.	①	②	③	④	⑤	⑥	⑦
3	Bir işi yaparken, tamamladığım kısmın bütün içinde nasıl yer aldığını görmek isterim.	①	②	③	④	⑤	⑥	⑦
4	Bir projede konuların genel görünümünü ya da bütünsel etkisini vurgulamaya eğilimliyim.	①	②	③	④	⑤	⑥	⑦
5	Spesifik ya da özel yerine, genel konulara odaklanabileceğim durumları tercih ederim.	①	②	③	④	⑤	⑥	⑦
6	Fikirlerimi konuşurken ya da yazarken, kapsamını ve sınırlarını bütün içinde göstermeyi severim.	①	②	③	④	⑤	⑥	⑦
7	Detaylara az dikkat etmeye eğilimliyim.	①	②	③	④	⑤	⑥	⑦
8	Gereksiz detaylar yerine, genel konuları içeren projelerle çalışmayı tercih ederim.	①	②	③	④	⑤	⑥	⑦
9	Genel sorular yerine ayrıntılı problemlerle uğraşmayı tercih ederim.	①	②	③	④	⑤	⑥	⑦
10	Genel ya da birçok problem yerine, somut olan tek bir problemle ayrıntılı olarak ilgilenmeyi isterim.	①	②	③	④	⑤	⑥	⑦

11	Probleme bütün olarak bakmak yerine, çözebileceğim küçük parçalara ayırmaya eğilimliyim.	①	②	③	④	⑤	⑥	⑦
12	Üstünde çalıştığım proje ile ilgili tüm detayları ve bilgileri toplamayı severim.	①	②	③	④	⑤	⑥	⑦
13	Detaylara dikkat etmem gereken problemleri tercih ederim.	①	②	③	④	⑤	⑥	⑦
14	Bir işin genel görünümünden ya da etkisinden çok, işin ayrıntılarına dikkat ederim.	①	②	③	④	⑤	⑥	⑦
15	Bir konuyu/ durumu tartışırken ya da yazarken, ayrıntıları bütünden daha önemli görürüm.	①	②	③	④	⑤	⑥	⑦
16	Belirli bir özel kapsam gözetmeden, bilgileri ve olguları ezberlemeyi severim.	①	②	③	④	⑤	⑥	⑦