



## The Relationship between Personality Traits and Strategic Thinking Skills

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### Abstract

The main purpose of this research is to examine the relationship between personality traits and strategic thinking skills. Quantitative research method was used in the study, and the data were obtained by online survey technique. The sample of the study is university students. In the study, which included 824 participants in total, the data were analyzed with the SPSS program. According to the analysis results, the dimension that represents the strategic thinking skills at the best level is intention/goal orientation and conscientiousness stands out as the most dominant personality traits. Also a positive and moderately significant relationship was found between personality traits and strategic thinking skills. The personality trait that has the highest effect on all strategic thinking skills is conscientiousness. Neurotic personality trait has a significantly negative effect on strategic thinking skills. The personality trait with the weakest effect on strategic thinking skills was determined as agreeableness.

**Keywords:** Strategic Thinking, Strategic Thinking Skills, Five Factor Personality Theory, Conscientiousness, Neuroticism

### 1. Introduction

The modern world is forcing everyone to be more strategic than ever. Every area of life now looks more complex than ever before. Everyone has to think more future-oriented, make clearer predictions both analyst and synthesizer, consider themselves, others and environmental conditions more carefully from a different perspective, and deal with many problem areas simultaneously. This situation, which is considered vital in terms of content and scope, constitutes the essence of strategic thinking which is defined as systematic, future-oriented, opportunistic, timely and hypothesis-oriented thinking (Liedtka, 1998: 121). With the level of significance it has in the intellectual and operational sense, strategic thinking cannot be considered as a skill that everyone has at the same rate. In order to be implemented effectively, it

needs to be considered together with many factors in individual and environmental terms. In this sense, personality traits are seen as a determining factor that can be evaluated among these factors. Because personality is associated with important consequences for an individual's life. Personality tendencies are related to happiness, physical and psychological health, spirituality and identity at the individual level; the quality of relationships with peers, family, and others with emotional ties at the interpersonal level. It is associated with the career choice, satisfaction and performance at the social institutional level as well as political ideology issues such as community participation, criminal activity (Ozer and Benet-Martinez, 2006: 401).

Based on these facts, the main purpose of the study was determined as examining the relationship between personality traits and strategic thinking skills. In generally the research try to answer questions such as "Do Personality Traits have an effect on Strategic Thinking? At what level? In what direction? However, the research specifically seeks answers to the following questions: Which personality trait is more related to which skill of strategic thinking? Which personality trait is most associated with the system perspective? Which of the strategic thinking factors do extroverted individuals tend to use more? How does the agreeableness personality trait reflect on strategic thinking skills? What are the strategic thinking tendencies of individuals who are open to experience? In which direction do individuals with high neuroticism tend to think strategically?

There are various studies in the literature that examine the subject from different perspectives on factors affecting strategic thinking. However, there is no specific empirical study on the effect or relationship of personality which we consider as an important factor affecting strategic thinking. There are studies on the subject only in the context of the characteristics of strategic thinkers. Therefore, the research may be important in terms of partially filling the existing gap in the literature.

## **2. Literature Review**

### **2.1. Strategic Thinking**

Strategic thinking is the art of overcoming the opponent and doing this, keeping in mind that he is trying to do the same to you (Dixit and Nalebuff, 1991: 1). In the literature, it is widely used in problem solving, decision making and scenario preparation for predicting the future (Haycock et al., 2012: 3). Strategic thinking contributes to many critical concepts that determine the future direction based on expected environmental conditions (Goldman et al., 2009: 6). Its main purpose is expressed as "to discover innovative strategies that reshape the rules of the competitive game and to foresee potential futures that are significantly different from the present" (Heracleous, 1998). According to Hill (2017) strategic thinking is primarily determining how to use the limited resources at hand in the most efficient way and moving towards goals. It is about recognizing and taking advantage of chance opportunities, as well as identifying lost opportunities and taking precautions (Bianca, 2014). Ohmae (1982) defines strategic thinking as "the ultimate nonlinear thinking tool" in contrast to traditional thinking approaches. Maxwell (2003) defines the concept as planning and managing the most advantageous position before struggle, apart from tactics. Kaufman et al. (2009) see strategic thinking as the "practical dream" that the individual defines outcomes that are valuable to him and that he creates for possible futures. Strategic thinking is about setting priorities, staying flexible and using not only information but also ideas while making decisions, as well as creating a roadmap that can be proactive (Perkins, 2012). According to Zand (2010), strategic thinking is a thinking model that requires asking penetrating questions to produce innovative options by considering the problem, thinking about alternative assumptions and research results, and reorienting the elements in order to become active. Finally, Liedtka (1998: 121) defines strategic thinking as a way of thinking that has its own unique

characteristics that include the components of system perspective, intention-oriented, intelligent opportunism, timely thinking, hypothesis-orientation, and testing. In the light of these definitions, it is said that, in summary, strategic thinking actually means a special form and level of thinking that has some specific characteristics (Özer et al., 2017: 152).

When the literature on the conceptualization and measurement of strategic thinking is examined, it is seen that comprehensive empirical research is not yet sufficient and the conceptual framework is in the development stage. In this context, it is seen that two main studies guide the literature. The first is named "Strategic thinking: Can it be taught?" research identified components by Liedtka (1998), conceptualized the content of strategic thinking as: "systems perspective, intent-focused, timely thinking, hypothesis-driven, intelligently opportunistic. Secondly, the study is a 3-dimensional (system thinking, reframing and reflecting experiences) Strategic Thinking Questionnaire (STQ), was conducted by Pisapia, Reyes-Guerra and Coukos-Semmel (2005) to measure the strategic thinking abilities of leaders, named "Developing the leader's strategic mindset: establishing the measures", and then whose validity and reliability were tested on different sample groups by Pisapia, Ellington, Toussaint, & Morris (2011). In this study, considering the conceptual framework and sample group of the research, in measuring strategic thinking skills, it was taken as basis Liedtka's (1998) strategic thinking study, that put forward a model that defines strategic thinking as a specific way of thinking with very specific and clearly identifiable features.

### ***2.1.1 System Perspective***

System perspective is the tendency to think together the whole, the parts that make up the whole, the relationships between parts and parts, and between the whole and parts together (Taşgıt et al, 2018: 257). Bonn (2001) defines the system perspective as a perspective that questions how different elements interact with each other and whether the solution of one problem affects another problem (Naktiyok and Çiçek, 2014: 160). This element, which offers an important perspective for strategic thinking, is seen as an effective method in providing different alternatives especially in learning (Senge, 1990) and eliminating the failures in determining the problem and making decisions (Lawrance, 1999: 5). Without an understanding of systems thinking, it is perceived as almost impossible to define the problem in all its aspects and to optimize the results of the decisions made. Therefore, strategic thinkers try to understand the mutual relations between all the pieces considered together. Such a perspective determines the role of each part in the system and clarifies the effects and consequences of their behavior on other parts of the system (Liedtka, 1998: 122).

### ***2.1.2 Intention / Goal Orientation***

Intent orientation is about focusing on the goal and being willing. According to Liedtka (1998: 123), intention/goal orientation increases the energy of individuals, concentrates their attention at a certain point and prevents distractions that may occur during the time required to reach the goal. In order to obtain these outputs, the intention in question must have some features. Hamel and Prahalad (1994) define the traits of strategic intention as being emotional, directing, exploring, and relating to fate. The strategic intention should imply a certain point of view about the long-term competitive position, show a direction and provide a distinctive perspective on the future. It should activate the individual's sense of discovering new competition areas and reveal a sense of emotional worthiness. However, intention should be defined in a way to answer the questions of what, why and how to focus on rational perspective (Liedtka, 1998: 123). Therefore, strategic thinkers can be considered as determined individuals who are focused on the goal based on rational and emotionally solid foundations.

### ***2.1.3 Intelligent Opportunity***

According to Liedtka (1998), intelligent opportunism means responding effectively to emerging / potential opportunities. For this, dilemmas that may arise should be successfully managed by striking a balance between a well-stated strategy that can channel all efforts effectively and efficiently, and the risk of overlooking alternative strategies that are more appropriate to the changing environment. The essence of intelligent opportunism is based on the idea of openness to innovation and finding and evaluating alternative opportunities that may arise in rapidly changing situations (Taşgit et al., 2018: 258). On the basis of adaptation to changing environmental conditions, there is discovery of interconnected events within a certain period of time, with a constantly evolving agenda orientation (Goldman, 2005). In order to be successful in intelligent opportunism applications, the individual needs to care about innovation as input and to embrace alternative strategy suggestions (Lawrance, 1999). In this context, strategic thinkers can be considered as people who have good observation ability in seizing the opportunities brought by change and a good adaptation ability in evaluating.

#### **2.1.4 Timely Thinking**

According to Liedtka (1998) timely thinking means keeping the past, present and future in mind at the same time in order to provide better decision making and fast implementation. Thinking in time consists of three components. The first is to recognize that the future is the predictive value of the past. The second is to recognize things that are of current importance for the future (real driving changes). The third component is continuous comparison, making inferences about the present and the future by examining the critical points regarding the changes that are likely to occur (Neustadt and May, 1986: 251). So the question to be asked to make sure thinking right is simply "what is the future we want to build?" it is not the question of "How will we use the past in creating the future" (Liedtka, 1998: 123). In this direction, strategic thinkers can be considered as people who have a wider perspective that can create an effective link between past, present reality and future orientation, and have the ability to anticipate possible situations and opportunities as well as adaptation to current situations and opportunities.

#### **2.1.5 Hypothesis Orientation**

According to Liedtka (1998), hypothesis orientation refers to a critical and questioning intellectual mechanism related to the inclusion of scientific method in thinking. The intellectual process progresses in the form of developing good comprehensive hypotheses and testing them efficiently (Liedtka, 1998: 124). Since analytical and intuitive thinking are used together in hypothesis-oriented, generating and testing hypotheses continues in iterative cycles. Hypothesis generation begins with a critical and well-defined question. The questioning continues as "if ... so ...". In order to evaluate the developed hypothesis, various data on relevant topics to be included in the analysis are collected, and the analysis is carried out with assumptions open to interpretation. This constantly repeating sequence enables hypotheses to be presented each time without losing the opportunity to discover new ideas (Taşgit et al., 2018). Therefore, strategic thinkers can be considered as people who have a critical and questioning identity and who repeat the intellectual processes in the form of hypothesis-testing at the point of solving the problem.

## **2.2 Personality**

Although the definition of personality is not generally agreed upon, there are important definitions in the literature that will enable understanding of its basic characteristics. According to Corr and Matthews (2009) personality is a series of characteristic behavior, cognition and emotional patterns that are shaped by the influence of hereditary (biological) and environmental factors. While personality is a whole that includes the characteristics of the society in which the individual is located (Durna, 2005: 276), it is the sum of the inborn characteristics of the individuals and the characteristics acquired by the socialization process later (Güleç and Alkış,

2004: 687). Personality is a combination of the past, the present and the future, together with the organization and integration of individual feelings, thoughts and behaviors (Hazar, 2006: 125) and has a resistant structure that does not change easily (Saritaş, 1997: 538). When a person is born, he does not have any personality. However, all of the individual differences of a person who potentially carries the qualities that are thought to belong to his personality (Akto, 2011: 193) are addressed within the subject of personality (Günel, 2010: 44).

In the literature, personality is mainly discussed in two groups of theory. The first are qualification-based personality theories that define personality as characteristics that predict one's behavior. The second is behavior-based theories that define personality through learning and habits (Corr & Matthews, 2009). Various test and measurement tools have been developed to facilitate the understanding and evaluation of the concept of personality on the infrastructure formed by these basic theories. Along with this, the contextual complexity of personality has caused diversity in the measurement tools developed. Among these measurement tools, especially due to their success in validity and reliability tests such as Eysenck's Personality Questionnaire (EPQ-R), Big Five Inventory (BFI), Minnesota Multiphasic Personality Inventory (MMPI-2), Rorschach Inkblot test, Neurotic Personality Questionnaire KON-2006 and Cattell's 16-factor Personality Scale measurement tools come to the fore. However, with the increase of interdisciplinary research on personality, approaches that provide descriptive categorization have started to take place in the literature. For example; Psychoanalytic approach, Distinctive Feature approach, Biological approach, Humanistic approach, Behavioral / Social Learning approach and Cognitive approach (Burger, 2006: 23). In this study, the "Distinctive Feature" approach from these approaches will be taken as basis. The first model of the distinctive trait approach was developed by Tupes and Christal (1961), then continued to be developed by researchers such as Goldberg (1990) and Costa and McCrae (1992), and it has been studied within the framework of five basic dimensions-personality types known as "The Big Five Theory-OCEAN Model" in the literature. Finally, the model revised by Costa and McCrae (1995) defines personality traits as five basic categories; openness to experience, conscientiousness, extraversion, agreeableness, neuroticism and 30 sub-dimensions related to it.

### ***2.2.1 Openness to Experience***

Individuals with high openness to experience scores are considered to be adventurous, interested in art, productive individuals who like to produce new ideas (Costa and McCrae, 1995: 130). People open to experience have a wide range of interests and can successfully activate their interests in many different professions. Such individuals find the prospect of being a poet, a journalist, or a surgeon equally attractive (Costa and McCrae, 1995: 130). Individuals with low levels of openness to experience are generally conservative, preferring uniformity, and intellectually unrelated (Horzum et al., 2017: 400). Costa and McCrae (1995) determined six basic adjectives related to the personality structure open to experience as a result of their studies: Fantastic, esthetic, emotional, active, intellectual and valued.

### ***2.2.2 Conscientiousness***

These people are probably the best candidates for demanding jobs that require organization. Such individuals prefer being successful in their career to their personal development (Costa and McCrae, 1995: 131). Individuals with high scores of conscientiousness believe that they are reliable, goal-oriented and responsible. They have strong aspirations, task-oriented, and success-oriented (Aslan and Akkaya, 2008: 142). Those with low conscientiousness scores are considered to be unplanned, delayed, relatively lacking in sense of task and undisciplined (Costa and McCrae, 1995: 128). Costa and McCrae (1995) determined six basic adjectives related to the

personality structure of conscientiousness: Self-disciplined, task-conscious, talented, organized, prudent and motivated to fight for success.

### **2.2.3 Extroversion**

While extroversion, which constitutes a central dimension in personality theories, tends to appear in energetic behaviors, introversion manifests itself in more reserved and lonely behaviors (Thompson, 2008). Extroversion is defined as "a type of attitude" characterized by the intensity of interest in the external object. Extraversion and introversion are typically contrasts, so being high in one means low in the other. In addition, everyone has both an extrovert and an introvert aspect, but one is more dominant than the other (Jung, 1995). Traits that are frequently associated with extroverts include being social, ambitious, assertive, talkative, and active (Barrick, and Mount, 1991: 3). In addition, they like to hear about everyone, and their interests are wide (Zel, 2011: 39). Costa and McCrae (1995) identified six basic adjectives related to extroverted personality structure as a result of their studies: Sociable, active, assertive, excitement-oriented, optimistic (nurturing positive emotions) and friendly.

### **2.2.4 Agreeableness**

Individuals with high agreeableness scores are generally respectful of their environment, flexible, reliable, cooperative, understanding, soft-hearted and emotionally satisfying, although they can show an attitude that considers the interests of others rather than themselves. On the other hand, individuals with low agreeableness scores have a profile that is far from cooperation, rude, have hostile feelings towards their surroundings, behave in a selfish manner, indifferent to their environment, lacking empathy and jealousy (Digman, 1990: 422-424). Costa and McCrae (1995) identified six basic adjectives related to congruent personality structure: reliable, honest, thoughtful of others before self, compliant, humble, and mild-mannered.

### **2.2.5 Neuroticism**

Neuroticism refers to being more prone to experiencing negative emotions such as emotional instability, anxiety, depression, and anger (Horzum et al., 2017: 400). People with low neuroticism score are comfortable, confident, calm and patient in stressful situations (Costa and McCrae, 1995: 128). Neurotic individuals are likely to be unhappy with any job because they are prone to distress and dissatisfaction, but individuals with low neuroticism are good candidates for successful careers (Costa and McCrae, 1995: 130). Individuals with high neuroticism are more suitable for jobs that require low stress and less emotionality (Costa and McCrae, 1995: 131). Costa and McCrae (1995) identified six basic adjectives related to neurotic personality structure: Anxious, having hostile feelings, depressive, low self-conscious, weak self-control, fragile.

## **3. Method**

In the research, correlational research technique was preferred among quantitative research methods, because of this study was designed to determine the relationship/effect between variables. The population of the study is the first, second, third and final year students studying at a public university in 2019-2020. Since the analyzes to be used do not require specifying a specific sample group, the formulation of "Sample Sizes for Different Variations in Discontinuous Variables" was used. According to this formulation, the sample size was calculated as 824, within 95% confidence limits and taking into account a 5% margin of error (Büyüköztürk et al., 2016: 101). Online survey method was used as data collection technique in the study. The questionnaire consists of 3 parts. In the first part, there are statements about the strategic thinking skills created by the researchers based on the 5 elements that Liedtka (1998) argues that elements are necessary for the realization of strategic thinking. The second part consists of items related to five factor personality traits based on the scale questions of Costa and McCrae (1995) study. To measure

Strategic Thinking Skills and Five Factor Personality Traits, 5-point Likert type evaluation criteria were used. In the third part, there are questions about students' gender, academic averages and departments to determine demographic characteristics. In order to ensure the structural and content validity of the statements in the questionnaire, the expert opinion technique was used, and it was determined to what extent the statements in the questionnaire were sufficient to cover the required factual or judgmental characteristics (Büyüköztürk, 2005: 148). Accordingly, the necessary arrangements were made in the questionnaire, taking into account the criticisms and suggestions of the experts.

For the survey application, ethics committee approval was obtained from the relevant University Rectorate and research data were collected within 6 weeks. Students of the Faculty of Education, Faculty of Medicine, Faculty of Theology, Faculty of Business Administration, Faculty of Engineering, Faculty of Health Sciences, Faculty of Sports Sciences and Faculty of Arts and Sciences participated in the survey.

To create the strategic thinking scale, the dimensions of systems perspective, intent-focused, thinking in time, hypothesis-driven, intelligently opportunistic that discussed at Liedtka's (1998) Strategic thinking: Can it be taught? named study, taken into consideration and 24 statements reflecting strategic thinking skills were obtained by researchers. The system perspective dimension consists of 5 statements, intention/goal orientation 6, intelligently opportunistic 4, timely thinking 5, and hypothesis orientation dimension 4 statements. For the personality traits scale, the "Five Basic Personality Types" scale, known as "The Big Five Theory-OCEAN Model" in the literature, revised by Costa and McCrae (1995) was used. The scale is composed of five basic categories (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism) and 30 statements (each category is 6 statements) that characterize personality traits.

#### **4. Findings**

The research findings were obtained as a result of descriptive statistics, factor analysis, correlation and regression analysis using SPSS data analysis program. First of all, the demographic characteristics of the participants were evaluated in order to determine the interpretation frame and boundaries of the research results.

According to the frequency analysis results, the majority of the 824 participants are female students. The participation rate of female students (53.4) is higher than that of male participants (46.6). The academic average of most of the participants (64.7%) is between 2.5 and 3.5 out of 4. This level shows that the participants have a relatively successful profile in academic terms. On the other hand, the participants are mostly in the field of social sciences in terms of the basic fields they study. When the specific rates are examined, it is seen that the highest participation is from the Faculty of Business (22%), Faculty of Arts and Sciences (15.4%), Faculty of Engineering (14.9%) and Faculty of Education (14.2%).

After the descriptive findings, secondly, in order to examine whether the statements related to the variables in the research model (Figure 1) constitute an acceptable valid structure, the scale items of strategic thinking skills and personality traits were subjected to exploratory factor analysis. Factor analysis results are presented in Table 1 and Table 2.

**Table1.** Strategic Thinking Skills Factor Analysis Results

Factors	Strategic Thinking Skills	Factor Loadings			Explained Variance	Eigen values
Intention /Goal Orientation	Being active for longer	,846			24,894	5,730
	Focusing more easily	,835				
	Working more efficiently	,833				
	Being more motivated	,804				
	Feeling valuable	,711				
	Having a determined perspective	,674				
System Perspective	Evaluating the events with a holistic perspective		,716		17,666	2,231
	Resolving connections between events		,706			
	To be able to analyze environmental conditions well		,663			
	Thinking about the domino effect of a problem		,615			
	Being aware of their own position in their environment		,539			
Timely Thinking	Anticipating important future opportunities now			,773	14,675	1,196
	To be able to analyze his/her situation well			,725		
	Guiding the people around for own opportunities			,651		
	Making connections between the past, present and future while evaluating events			,621		
	To be able to predict the future impact of the decisions made now			,507		

According to the literature, in order for the data set to be suitable for factor analysis, the KMO value should be at least 0.50 and the Bartlett test result should be significant. Accordingly, when table 1 is examined, it is seen that the KMO value of the data and Bartlett test values are suitable for factor analysis (KMO value of 0.900. Bartlett test result:  $p < 0.001$ ). Principal component analysis and varimax rotation technique were used for factorization. Items showing low communalities (below 0.45) were excluded from the scale. In this direction, 24 items analyzed, 8 expressions showing low communalities, high factor loadings in more than one factor (overlapping), without factor loading and remaining alone were excluded from the scale. 16 items were collected under 3 dimensions. Statements about intelligent opportunism and hypothesis orientation did not create a specific structure. The first dimension is intention / goal orientation, the second dimension is system perspective and the third dimension is timely thinking. The total variance explained by the factors regarding the scale is 57,235%. Therefore, it can be said that the resulting 3 factors together explain a significant part of the variance. The variance explained by the first is 24,894%, the second is 17,666% and the third is 14,675%. According to the analysis results, the first factor consists of 6 statements, the second factor consists of 5 statements, and the third factor consists of 5 statements. The factor load values of the items in the first factor varied between 0.846 and 0.674, in the second factor varied between 0.716 and 0.539, and in the third factor varied between 0.773 and 0.507. In the light of these findings showing that the factor structures are reliable, it can be said that students perceive strategic thinking skills in 3 different dimensions. Among these dimensions, the dimension that represents the strategic thinking skill at the best level is the dimension of intention/goal orientation.

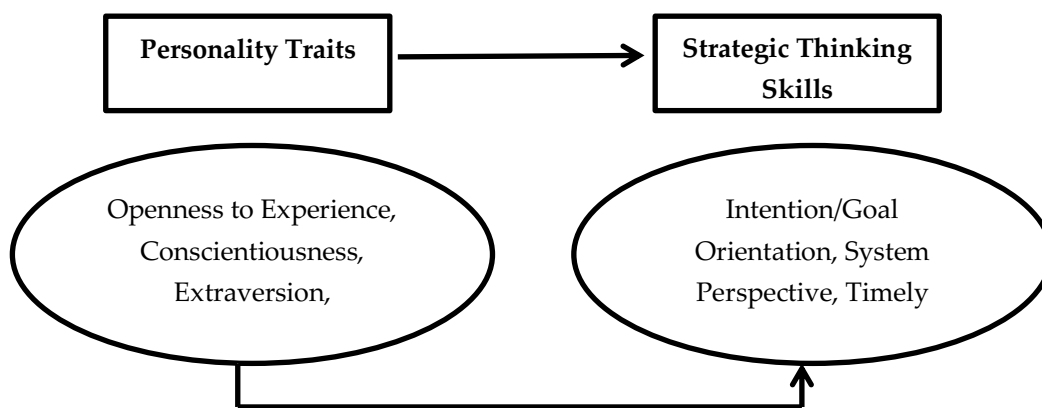


**Table 2.** Personality Traits Factor Analysis Results

Factors	Personality Traits	Factor Loadings				Explained Variance	Eigen values
Conscientiousness	Being well organized, tidy and meticulous work	,783				13,764	5,878
	Cautious, thoughtful, careful act	,742					
	Do not like to procrastinate, likes to force	,726					
	Honest, attentive and have the moral of duty	,705					
	Ambitious, striving to be perfect	,692					
	Confident, proud to be talented	,506					
Agreeableness	Sympathetic, humane and non-irritating	,777				10,743	2,369
	Caring for others, generous, forgiving, kind-hearted	,696					
	Humble, not self-praising, not despising others	,694					
	Likes to act together, gets along easily with people	,668					
	Sincere, does not manipulate people	,583					
Extroversion	Loves to be with people and social		,830			10,294	2,003
	Friendly, talkative, willing to interact		,808				
	Strong and assertive, looking for leadership positions		,552				
	Energetic, lively, with high activity level		,547				
Openness to Experience	Closely related to art and aesthetics			,646		10,148	1,555
	Adapts to innovation easily, does not like monotonous things and is bored with routine			,634			
	Fantastic, imaginative and dreamy			,632			
	Adventurous and courageous, doing dangerous things for excitement			,594			
	Curious to learn new ideas, love to ask questions, want to encourage new ideas			,552			
Neuroticism (*Items are reverse coded)	*I am not confident, able to deal with problems and stress well				,697	7,438	1,292
	*I am not a person who is not influenced by people, who makes his/her own decisions, thinks well before deciding.				,659		
	*I am not confident in the social environment, easily embarrassed and adaptable to different environments.				,583		
	*I am not someone who can easily be satisfied, rarely feel bored				,528		
	I am relaxed, reckless and not sensitive to potential problems				,423		

When Table 2 is examined, it is seen that KMO value of the data and Bartlett test values are suitable for factor analysis (KMO value 0.865. Bartlett Test result  $p < 0.001$ ). As a result of the rotation of 30 items included in the analysis; expressions showing low communalities, giving high factor loadings in more than one factor (overlapping), without factor loading and standing alone (expressions no. 2, 12, 15, 18 and 19) were removed from the structure. The Item 11 (Adventurous and courageous, doing dangerous things for excitement), belonging to the dimension of extroversion, was included in another factor structure (under the dimension of openness to experience). This expression is left within the openness to experience factor structure because it does not pose a serious problem at the conceptual and content level and the factor structure is broken when it is removed from the existing structure. The remaining 25 statements were collected under 5 dimensions. Dimension names in the original scale were used in naming the factors. The total variance explained by the factors regarding the scale is 52.386%. Therefore, it can be said that the resulting 5 factors together explain a significant part of the variance. The total variance explained by the first of the 5 factors regarding the scale is 13.764%, the second is 10.743%, the third is 10.294%, the fourth is 10.148 and the fifth is 7.438. According to the analysis results, the first factor consists of 6 statements, the second factor 5, the third factor 4, the fourth factor 5 and the fifth factor 5 statements. The factor load values of the items in the first factor were between 0.783 and 0.506, in the second factor were between 0.777 and 0.583, in the third factor were between 0.830 and 0.547, in the fourth factor were between 0.646 and 0.552 and in the fifth factor between 0.697 and 0.423. In the light of these findings showing that the factor structures are reliable, it can be said that students' perceptions of their personality traits are formed in 5 different dimensions. Among these dimensions, it is seen that the dimension that represents personality traits at the best level is conscientiousness.

After the findings of the factor analysis obtained, the research model, based on the literature review, field expert academician views and individual observations, was created as in Figure 1, in accordance with the logic of constructing the exploratory model, in a way that all relations between variables were released.



**Figure 1.** Research Model

If some predictions are made without making a hypothesis about the relations between the variables; For example, individuals who are open to experience have a productive nature due to their broad interests. Since their perceptions are open and broad, they can look at events from different windows, establish connections between events that affect each other, and come up with new hypotheses. Therefore, a positive relationship can be expected between the openness to experience feature and the system perspective from strategic thinking factors. Likewise, a positive relationship can be expected between conscientiousness for personality traits dimensions and

intention/goal orientation and timely thinking, which are components of strategic thinking, when the basic features of the dimensions are considered.

On the other hand, individuals with a predominant neuroticism feature have poor anger control problems, have unfriendly feelings towards the environment, make sudden decisions and act without thinking, and tend to be constantly depressed, so their ability to make connections between events is weak. They are unsuccessful in group work. They often have trouble communicating with people. Because of their sudden bursts of emotion, they cannot think prudently. Therefore, a negative relationship is expected between the neurotic feature and all of the strategic thinking components. The general hypothesis of the study was developed in the form: "H1: Personality Traits is a significant predictor of Strategic Thinking Skill". In addition, all interactions between variables will be examined in order to determine which personality traits/personality type combinations are more effective on strategic thinking skills to achieve the sub-objectives of the research.

Descriptive statistics (mean, standard deviation and reliability coefficients) related to the variables obtained after the exploratory factor analyses were examined. Results are presented in Table 3.

**Table 3.** Descriptive Statistics about the Variables

<b>Variables</b>	<b>Means</b>	<b>Standard Deviations</b>	<b>Reliability Coefficients</b>
<b>Intention/Goal Orientation</b>	4,4092	,70069	,894
<b>System Perspective</b>	4,1694	,59233	,718
<b>Timely Thinking</b>	3,7126	,69467	,752
<b>Conscientiousness</b>	3,9389	,78116	,820
<b>Agreeableness</b>	3,9867	,72280	,752
<b>Extraversion</b>	3,9175	,91174	,807
<b>Openness to Experience</b>	3,8337	,75104	,674
<b>Neuroticism</b>	1,9036	,45061	,542

When Table 3 is examined, it is seen that the most significant feature of the students participating in the study about strategic thinking skills is intention/goal orientation ( $X=4.4092$ ). While it is observed that students have a good level in terms of system perspective, a relatively low level is observed in terms of timely thinking criteria.

When the participants were evaluated in terms of personality traits, although the most dominant feature was agreeableness ( $X=3.9867$ ), the characteristics of conscientiousness, extraversion and openness to experience were also remarkable. In addition, neurotic personality traits of the participants are very low.

On the other hand, when the reliability coefficients of 7 variables are examined, the coefficient values obtained for the 6 variables are above the threshold value ( $\alpha: 0.60$  or above) considered valid in the literature, while the reliability coefficient for the neurotic dimension (.542) has a low reliability level (Yaşar, 2014: 63). In this context, it can be said that these findings meet the basic assumption for relationship and impact tests.

After evaluating the reliability of the scales, correlation analysis was conducted to determine the degree and direction of the relationships between the participants' personality traits and strategic thinking skills. Findings regarding the analysis are presented in Table 4.

**Table 4.** Relationship between Strategic Thinking Skills and Personality Traits

Variables	1	2	3	4	5	6	7	8
<b>1. Intention/Goal Orientation</b>	1							
<b>2. System Perspective</b>	,417**	1						
<b>3. Timely Thinking</b>	,355**	,524**	1					
<b>4. Conscientiousness</b>	,433**	,438**	,427**	1				
<b>5. Agreeableness</b>	,245**	,186**	,087**	,251**	1			
<b>6. Extraversion</b>	,293**	,356**	,345**	,455**	,239**	1		
<b>7. Openness to Experience</b>	,255**	,338**	,366**	,383**	,241**	,542**	1	
<b>8. Neuroticism</b>	-,121**	-,245**	-,241*	-,228**	-,110**	-,266**	-,253**	1

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*.. Correlation is significant at the 0.01 level (2-tailed). (n=824).

A moderate positive relationship ( $r = 0.528$ ;  $p < 0.01$ ) was found between students' strategic thinking skills and personality traits. When the specific relationships between the variables in Table 4 are examined, it is seen that there is a moderately positive relationship between conscientiousness personality trait and all dimensions of strategic thinking skills.

The strategic thinking skill with which the conscientiousness feature is most closely related is the system perspective ( $r = 0.438$ ;  $p < 0.01$ ). This is followed by intention/goal orientation and timely thinking. Likewise, the agreeableness personality trait was found to be associated with the highest level of system perspective ( $r = 0.356$ ;  $p < 0.01$ ). However, while the agreeableness personality trait is secondly related to timely thinking, it is related to the intention/goal orientation in the last order. The strategic thinking skill associated with the personality trait of extroversion at the highest level is intention/goal orientation ( $r = 0.245$ ;  $p < 0.01$ ). Although other features are significant, they are relatively low. Open to experience personality trait has the highest level of relationship with timely thinking skill ( $r = 0.366$ ;  $p < 0.01$ ). This is followed by system perspective and intention/goal orientation.

On the other hand, a significant negative relationship was found between the neurotic personality trait and all components of strategic thinking. While the neurotic personality trait is relatively more highly associated with system perspective and timely thinking, it has a lower level relationship with intention/goal orientation.

The findings obtained show that personality traits can have a significant effect on strategic thinking skills. In this context, regression analyzes were conducted to determine the effect of personality traits on strategic thinking skills. The general findings indicate that personality traits are a significant predictor of strategic thinking ( $r$ ; 528 -  $r^2$ ; 279 -  $F$  (1-822): 318,376 -  $t$ : 17,843 -  $p$ ; 000).

Analysis results regarding detailed model findings are given in the tables below. Findings regarding the effect of personality traits on intention/goal orientation are shown in Table 5.

**Table 5.** Personal Traits-Intention/Goal Orientation Regression Analysis Results

Model Variables		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,257	,212		10,654	,000		
	Conscientiousness	,311	,032	,347	9,669	,000	,744	1,345
	Agreeableness	,123	,032	,127	3,918	,000	,906	1,104
	Extraversion	,062	,030	,080	2,042	,041	,622	1,608
	Openness to Experience	,046	,035	,049	1,295	,196	,666	1,501
	Neuroticism	,009	,051	,006	,180	,857	,902	1,108
<b>Model 1. Dependent Variable: Intention/Goal Orientation</b> r: ,465 r <sup>2</sup> : ,212 F <sub>(5-818)</sub> : 45,254 p: ,000								

When the analysis results in Table 5 are examined, it can be said that there is no multicollinearity problem between the independent variables since the tolerance values are more than 0.20 and there is no value higher than 10 among the VIF values of the variables. It is seen that 21% of the variance regarding intention/goal orientation is explained by personality traits.

Specifically, personality traits that have a significant and positive effect on intention/goal orientation are conscientiousness, agreeableness and extroversion. The personality trait that has the highest impact is conscientiousness. The features of openness to experience and neuroticism have not been found to have any effect on intention/goal orientation.

Another model tested within the scope of the research is to determine the effect of personality traits on the system perspective. Findings regarding the analysis are presented in table 6.

**Table 6.** Personality Traits-System Perspective Regression Analysis Results

Model Variables		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	2,744	,175		15,659	,000
	Conscientiousness	,231	,027	,304	8,659	,000
	Agreeableness	,034	,026	,041	1,288	,198
	Extraversion	,073	,025	,112	2,921	,004
	Openness to Experience	,097	,029	,123	3,324	,001
	Neuroticism	-,145	,042	-,110	-3,456	,001
<b>Model 2. Dependent Variable: System Perspective</b> r: ,500 r <sup>2</sup> : ,245 F <sub>(5-818)</sub> : 54,401 p: ,000						

When the analysis results in Table 6 are examined, it is seen that 24% of the variance regarding the system perspective is explained by personality traits. When an evaluation is made in a specific sense, it is understood that all personality traits other than agreeableness have a significant effect on the system perspective. The personality trait that has the highest significant and positive effect on system thinking is conscientiousness. This is followed by extraversion and openness to experience personality traits. The neurotic personality trait has a significant negative effect on the system perspective.

Finally, the model for the effect of personality traits on timely thinking was examined within the scope of the research. Findings are presented in table 7.

**Table 7.** Personal Traits-Timely Thinking Regression Analysis Results

Model Variables		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	2,277	,205		11,085	,000
	Conscientiousness	,272	,031	,306	8,709	,000
	Agreeableness	-,067	,031	-,069	-2,179	,030
	Extraversion	0,70	,029	,092	2,388	,017
	Openness to Experience	,175	,034	,189	5,093	,000
	Neuroticism	-,164	,049	-,107	-3,343	,001
<b>Model 3. Dependent Variable: Timely Thinking</b> r: ,501 r <sup>2</sup> : ,246 F <sub>(5-818)</sub> : 54,745 p: ,000						

When Table 7 is examined, it is seen that 24% of the variance related to timely thinking in general is explained by personality traits. In a specific sense, it is understood that all personality traits have a significant effect on timely thinking. Conscientiousness, extraversion, and openness to experience have a positive effect on simultaneous thinking, while agreeableness and neuroticism have a negative effect.

### 5. Conclusions

This study, which was carried out to examine the relationship between the personality traits of university students and their strategic thinking skills, reflects the perspective of both groups (male and female), despite the higher number of female students compared to boys, who study mostly in the field of social sciences, have an intermediate level and a little higher academic achievement.

Participants' perceptions of strategic thinking skills are shaped in 3 dimensions: intention/goal orientation, system perspective and timely thinking. Among these dimensions, the dimension that represents the strategic thinking skill at the best level is intention/goal orientation. This is followed by systems perspective and timely thinking, respectively. On the other hand, the perceptions of the participants about their personality traits were collected under the same dimensions (after some statements were removed) with the original scale revised by Costa and McCrae (1995); openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Conscientiousness stands out as the most dominant personality traits of the participants. This is followed by agreeableness, extraversion, openness to experience and neuroticism, respectively.

When the relationships between variables were examined, a moderate positive relationship was found between personality traits and strategic thinking skill in general. When the specific relationships were examined, it was determined that the strategic thinking skill that the conscientiousness and agreeableness personality traits were most related to the system perspective. While the extraversion personality trait is associated with the highest level of intention/goal orientation, the openness to experience personality trait has the highest level of association with timely thinking from strategic thinking skills. On the other hand, a significant negative relationship was found between the neurotic personality trait and all of the strategic thinking skills. Especially the relationship between neurotic personality trait and system perspective and simultaneous thinking is remarkable.

The results obtained in the scope of the study regarding the effect show that, in general, personality traits are a significant, if not very strong, predictor of strategic thinking. This finding confirms the research hypothesis. Strategic thinking is significantly influenced by personality traits. When the findings regarding which strategic thinking skills are affected more by personality traits/traits in a specific sense, it is seen that the ability to exhibit intent/goal-oriented behavior is positively affected by both conscientiousness and agreeableness, extroversion personality traits. Therefore, it can be said that people whose conscientiousness, agreeableness and extroversion characteristics are dominant are successful in intention/goal orientation. Especially, it can be thought that people with conscientiousness features can be more successful in intention-oriented. In this context, it can be argued that people who are well-organized, meticulous, cautious, do not like to delay, and like to force themselves can be more successful in focusing easily towards a certain purpose, maintaining their effectiveness for a long time, working efficiently, being motivated and evaluating events from different perspectives.

The ability to have a system perspective from strategic thinking skills is affected by all personality traits other than agreeableness. While conscientiousness, openness to experience, and extraversion have a positive effect, neuroticism has a negative effect. As in the intent/goal orientation skill, the personality trait that affects the system perspective oriented thinking skill at the highest level is conscientiousness. Therefore, it can be said that individuals whose lives are based on order, act carefully, obey the rules and strive to be perfect are more effective than other personality traits in the matters which having a holistic perspective, being able to make connections between events that affect each other, being able to analyze their environment well, considering the possibility that they may cause other problems while solving a problem. On the other hand, the neurotic personality trait has a significant negative effect on the system perspective. This finding shows that individuals who are not self-confident, not able to cope well with problems and stress, influenced by others very quickly, cannot think thoroughly before making a decision, indifferent and not sensitive to potential problems, have serious problems at the point of systematic thinking.

Finally, timely thinking skill is significantly affected by all personality traits. While conscientiousness, extraversion, and openness to experience provide a positive effect, agreeableness and neuroticism have a negative effect. It can be ranked as conscientiousness, openness to experience and neuroticism in terms of effect level. Therefore, it can be argued that individuals with strong responsibility, are interested in aesthetics, do not like monotonous things and are bored with routine, are imaginative, like to ask questions, want to encourage new ideas and adapt easily to innovation will be more effective in the matters like analyzing the current situation and future situations, predicting future opportunities, making connections between the past, present and future while evaluating events. On the other hand, the negative-impact finding about neurotic personality trait shows that neurotic personalities have problems in evaluating opportunities and threats regarding today, the past and the future. In this context, it can be said that neurotic personalities face various problems in timely thinking.

The results obtained within the scope of the research are very consistent with the findings of the studies in the literature. In particular, it shows significant similarities with the results obtained in the studies such as Dixit and Nalebuff (1991) "Strategic Thinking: Business Policy and the Competitive Side of Daily Life", Maxwell (2003) "Thinking for a Change: 11 ways highly successful people approach life and work", Goldman (2005). ) "Becoming an Expert Strategic Thinker: CEO of The Learning Journey of Healthcare", Aslan and Akkaya (2008) "Thinking Styles and Review of Five Big Personality Traits" and Polatçı, Sobacı and Kaban (2020) "Personality Traits of and The Effects of Individual Job Adaptation on Job Satisfaction: A Study on Subcontracted Employees".

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