



## Relationship between Personality Traits and Administrative Self-Efficacy Beliefs among Principals

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### Abstract

The selection of school principals is being conducted according to subjective evaluations rather than objective criteria. It cannot be sufficiently assessed in the hiring process whether the personality traits of school principals, who are the leaders of school communities, are appropriate for administrative functions. In addition, the administrative self-efficacy beliefs of principals need to be explored. This study looks into school principals' personality traits and administrative self-efficacy beliefs. The research draws its data from 643 school principals in Ankara. The findings show that school principals have high self-efficacy beliefs and conscientiousness and they are extrovert. Canonical correlation analysis reveals that personality traits predict 60% of principals' administrative self-efficacy beliefs. Based on these findings, it can be concluded that principals hold self-efficacy beliefs which help them to achieve managerial tasks. Personality traits play a vital role in the emergence of these beliefs.

### Keywords

School Principal  
Personality  
Big Five Personality Theory  
Self-efficacy  
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### Introduction

School principals play an important role in managing educational aims successfully. In their meta-analysis study Hallinger and Heck (1998) reveal that leadership behaviours of principals have relationship with school efficacy. School principals contribute to school efficacy through the roles of decision making, planning, organizing, leading and supervising in achieving educational goals. Therefore, it is vital that principal candidates should firstly take management and leadership pre-service training and then be employed after a comprehensive scrutinising process. The pre-service training and employment of principals varies across countries. In developed countries, such as the United Kingdom and the USA, merit and qualification are important criteria in the recruitment of principals. For instance, in England prospective principals are required to complete the National Professional Qualification for Headteachers programme successfully (Duncan, 2002; Bush & Bell, 2002). In the USA, it is a legal obligation that principals hold a postgraduate degree in management (Wildy, Clarke, & Slater, 2007) whereas in developing countries, including Turkey, the only criterion for being a school principal is to

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hold a teaching qualification (Korkmaz, 2005), and this creates problems in the efficient management of schools (Demirtaş, Üstüner, & Özer, 2007). In the process of selecting and employing school principals, their sense of administrative self-efficacy and appropriateness of their personality traits for being a school principal is as important as the pre-service training.

Being situated between Asia and Europe, Turkey is a developing multi-cultural country with 78 million people. With the fall of the Ottoman Empire after the First World War, the Turkish Republic was established which embraced democracy. After the establishment of the Turkish Republic, education was regarded as an important pillar for the development of the country (Özdemir, 2008). Since the early years of the Republic, several teacher training schools were established to meet the need for teachers (Deringöl, 2007). Despite all the positive developments in education, school leadership was never regarded as a separate profession that requires different qualifications than those required from a teacher. This mentality has been retained even in the current education legislation, and school leadership is listed as one of the tasks of the teaching profession (Republic of Turkey Ministry of National Education [MEB], 1973).

Since the early years of the Republic, the training of school principals was based on chronologically a master-apprentice model, educational sciences model and the model that searches for some additional qualifications for school principals (Şimşek, 2002). Accordingly, and as a result of the centralized structure of the Ministry of National Education (MoNE), principals are selected among the teachers by senior managers. Thus, teachers who are appointed as school principals are pushed to learn the managerial tasks by a trial and error method. Nowadays, school principals are employed for four years according to the legislation in force. To be appointed as principals, teachers are required either to have previously worked as principals or to have worked at administrative status at units of MONE. Although rewards, penalties, length of service and level of education are listed among the main criteria for the position, the interview conducted by the exam board determines who can be a principal to a large extent. As a result of this evaluation, teachers are appointed to schools as principals for duration of four years based on their scores and school choices (MEB, 2015). Therefore, school principals in Turkey are assigned through the subjective evaluation of an exam board rather than on the basis of objective criteria such as merits and qualification (Özdemir, 2014).

It is vital to investigate school principals' personal traits and self-efficacy beliefs for an efficient principal employment. In this regard, the personal traits and administrative self-efficacy beliefs of teachers appointed as principals in public schools are not known. Personality traits are listed, however, as an important part of leadership in the literature (Burns, 1978; Stogdill, 1974). A meta-analysis research also supports this argument (e.g. Bono & Judge, 2004). In that study, it has been revealed that personal traits of leaders have a significant effect on effective leadership process. Thus, examining the personality traits of school principals who are the leaders of school communities can contribute to the literature on education leadership. In Turkey, there is no assessment centre that analyses the principal candidates' personality traits in the recruitment process; the personality traits of principals can, therefore, be explored. There are some examples for that assessment centres abroad that investigate whether the candidates have the necessary behaviours needed for the positions they apply for. In this way, it is possible to achieve more effective results in recruitment process (Özdemir, 2014). In this context, the school principals in charge are waiting for being investigated for their personality traits. For principal candidates, investigating their personality traits can be clue for whether they can fulfil the management role. One of the variables that is related to personality is self-efficacy (Caprara, Vecchione, Alessandri, Gerbino & Barbaranelli, 2011). According to a study, school principals have high administrative self-efficacy beliefs (Smith, Guarino, Strom, & Adams, 2006). Pre-service training is important in developing the self-efficacy beliefs of principals (Tschannen Moran & Gareis, 2007). Considering that pre-service training in management is not a prerequisite for principal appointments, analysing the administrative self-efficacy beliefs of principals who have not taken such training can contribute to the research on

education leadership. In this regard, this study aims to examine the relationship between the personality traits and the self-efficacy beliefs of principals in schools.

### ***Conceptual Framework***

#### ***Big Five Personality Theory***

Personality is an important determinant of human behaviour (Digman & Takemoto Chock, 1981). It is a factor that affects the entire life of a person from personal relations and job preferences to relations with the opposite sex. Therefore, focusing on the personality is important for getting to know someone or guiding people (Karaman, Doğan, & Çoban, 2010). The debates and discussions on personality date back to 2000 years ago. For instance, Aristotle tried to categorise the characteristics of individuals into broad categories (Judge & Bono, 2000). Yet, the scientific analysis of personality started only in the 20th century (Daly, Liou, Tran, Cornelissen, & Park, 2014; John & Srivastava, 1999).

It could be argued that personality classification started with McDougall's (1932) study, in which he analysed personality through five factors: intellect, character, temperament, disposition and temper. Allport and Odbert (1936) define personality as behaviours that distinguish one human being from another, and they used an analysis composed of approximately 18000 terms in order to define the personality of an individual. This definition was not very functional for psychologists as it had too many terms and, therefore, Allport and Odbert simplified their definition and introduced four major categories to define personality. These are personality traits, temporary states, moods and activities and high evaluative judgements. In their further studies, Allport and Odbert produced similar definitions and dimensions. Drawing from their 18000 terms and four categories, Cattell (1943) conducted a research on university students and used peer assessment and the factor analysis method in order to analyse personality. In 1970 Cattell explained personality through 16 different dimensions (Cattell & Mead, 2008). Fiske (1949) developed Cattell's work using self-regulation, peer assessment and psychological personal assessment methods and he designed a five-factor model. Like Fiske, Tupes and Christal (1961) concluded that personality can be defined under five categories as surgency, emotional stability, agreeableness, dependability and culture. Fiske supported Tupes' five-factor study in his further research (Borgatta, 1964; Smith, 1967). The big five personality definition in the literature belongs to Norman (Barrick & Mount, 1991; Goldberg, 1981). Norman (1963) introduced five subscales to describe personality: extraversion, emotional stability, agreeableness, conscientiousness and culture. The reason why these personal descriptors are called big five is because each subscale is quite broad (John & Srivastava, 1999). These subscales include language terms which people use to describe themselves and other people (John, Naumann & Soto, 2008).

In 1980s, a number of scales were developed to test BFPT (Block, 1995). In these years, Norman's big-five model was proved to be the most reliable tool (Goldberg, 1981; Digman & Takemoto Chock, 1981). In the next years, several studies were conducted on BFPT (Costa & McCrae, 1988; Digman, 1990; Goldberg, 1981; McCrae & Costa, 1987; McCrae, 1989). Although a general consensus was reached on BFPT's subscales, there were also several differences of opinion on certain issues. These differences particularly concerned the conscientiousness and culture subscales of Norman's test (Barrick & Mount, 1991). McCrae and Costa (1985) titled the culture subscale as openness. Attribution analysis (Goldberg, 1982) and scales (McCrae & Costa, 1985) were used in further studies to form a comprehensive framework of BFPT (Costa & McCrae, 1988). As a result of the studies conducted in the course of many decades, BFPT has been accepted as an appropriate model to determine personality traits (Benet Martinez & John, 1998; Barrick & Mount, 1991; Borgatta, 1964; Daly et al., 2014; Digman & Takemoto Chock, 1981; Digman, 1990; Goldberg, 1981, 1990, 1992; John et al., 2008; Somech, 2010; Tupes & Christal, 1961).

BFPT consists of five subscales; extraversion, neuroticism, agreeableness, openness and conscientiousness. Extraversion expresses an energetic approach to the social and physical world (John & Srivastava, 1999) and it represents being outgoing, assertive, active and adventurous (Judge & Bono,

2000; Benet Martinez & John, 1998), sociable (Barrick & Mount, 1991) and enthusiastic (John & Srivastava, 1999). For instance, an extravert person introduces himself/herself at a party and communicates easily with other people (John et al., 2008). Neuroticism is the state of being tense, anxious, irritable, not contented and sad (John & Srivastava, 1999), moody (Judge & Bono, 2000) and selfish (Lazaridou & Beka, 2015). An example of behaviour from this subscale would be to accept good and bad things in life without complaining (John et al., 2008). Agreeableness means being altruistic, modest, forgiving and compliant (Benet Martinez & John, 1998; John & Srivastava, 1999), tender and warm (Judge & Bono, 2000), sympathetic, collaborative and friendly (Lazaridou & Beka, 2015). An example of this behaviour would be to feature the good aspects of people when talking about them (John et al., 2008). Openness is profoundness and complexity in an individual's mind and experiences (Benet Martinez & John, 1998). It stands for aesthetics (Lazaridou & Beka, 2015), fantasy, imagination, being sentient and mindfulness (Judge & Bono, 2000). People with the above characteristics tend, for instance, to watch documentaries or educational broadcasts (John et al., 2008). Conscientiousness is an impulse control mechanism determined by social rules which drives people to display behaviours focusing on certain aims and duties (Benet Martinez & John, 1998). It explains to what extent individuals are hardworking, success-oriented, careful and determined (Barrick & Mount, 1991), trustworthy, meticulous and organised (Marshall, Kiffin Petersen, & Soutar, 2012) and responsible, self-disciplined, motivated and ambitious (Goldberg, 1992). A conscientious person, for example, would arrive to appointments early or on time (John et al., 2008).

BFPT offers a universal framework to describe personality (McCrae, 1989), it has intercultural validity, and its significance has been shown consistently in the literature. BFPT has been successfully employed in research up to now (Shedler & Westen, 2004), and, therefore, in some countries principals' personality traits are examined through the BFPT model (Lazaridou & Beka, 2015; Yıldızoğlu & Burgaz, 2014).

#### *Principals' Self-Efficacy Beliefs*

Self-efficacy is about individuals' self-judgements about how well they can cope with the problems or situations they face. Self-efficacy was first introduced by Bandura in 1977. Self-efficacy belief is the core concept of the Social Learning theory developed by Bandura. Self-efficacy focuses on the necessity of developing self-confidence so that individuals can use their skills more efficiently (Cassidy & Eachus, 2002; Stajkovic & Luthans, 1998b). Self-efficacy, as it was described by Bandura (1988), is an individual's belief in his/her own capacity to increase his/her learning and to modify his/her behaviours to the required level. According to Bandura, in addition to holding the necessary skills for achievement, it is also necessary to use these skills efficiently and confidently (Evers, Brouwers, & Tornic, 2002). Despite having the necessary skills to achieve, the possibility of failing increases for an individual if that individual does not have confidence in overcoming the difficulties of a task (Gawith, 1995). Individuals with high self-efficacy beliefs about developing a skill or learning a topic adapt more easily compared to those who feel insecure about their learning capacity and skills. In such cases, individuals work hard, they seek challenging learning experiences and they display resilience and achievement in the face of obstacles (Lombardo, 2006; Pajares, 2002; Schunk, 1990; Stajkovic & Luthans, 1998b; Zimmerman, 2000).

According to Bandura (1977), self-efficacy is the self-belief of individuals who judge themselves capable of handling difficult situations, obstacles and aversive experiences. This belief helps individuals to organise a specific behaviour in order to reach specific goals. According to Bandura, the stronger the perceived self-efficacy is, the more active the efforts are. These efforts and aims affect individuals' cognitive processes, motivations, performances and success in the implementation of decisions (Henson, 2001; Locke & Latham, 1990).

Bandura (1997) argues that the self-efficacy belief is effective in people's performance experiences, emotional states, indirect experiences and verbal persuasion issues. According to Bandura, individuals evaluate the results of their experiences in a particular topic and drawing from these results they think that they have reached the capability of organising the course of their actions (Bandura, 1997; Koul & Rubba, 1999; Pajares, 2002). For Stajkovic and Luthans (1998a), self-efficacy belief is the most important determinant of performance whereas Locke (2003) sees self-efficacy belief as a motivation factor for performance. According to Kozlowski et al. (2001) and Judge, Jackson, Shaw, Scott, and Rich (2007), self-efficacy is an element determining performance.

Pajares (2002) argues that as long as people do not believe in their ability to create the results they wish, they do not make any attempt and they do not act resiliently in the face of challenges. It was observed that individuals with low self-efficacy beliefs avoid taking actions and initiatives, they give up easily in the face of difficulties and they underperform due to the high level of stress, and, therefore, they are less successful (Gordon, Lim, McKinnon, & Nkala, 1998; Pajares, 2002). In general, individuals cannot evaluate their capacities accurately. They perceive that their capacities are lower than they actually are and this prevents them from using their skills ideally. When they have more favourable perceptions about their capacities, this affects their performance positively (Tschannen Moran, Woolfolk Hoy, & Hoy, 1998). When individuals who have self-efficacy belief believe that they have the necessary skills and control power to achieve a task, then they become more enthusiastic about choosing this task, they act assertively and they enact the required behaviours (Eaton & Dembo, 1996; Sharp, 2002). An individual's will and enthusiasm to achieve a goal increases as the self-efficacy beliefs increase. It increases individuals' gains as they set more challenging aims.

Self-efficacy has an important influence on school administration. The self-perception of principals in terms of their cognitive and behavioural aspects is an important tool in reaching the school aims (McCormick, 2001). Within this context, there are studies which show that there is a positive correlation between organisational effectiveness, development and the self-efficacy belief of a leader (Bennis & Nanus, 1985; Cleveland, 1985). Similarly, another research shows a significant relationship between the self-efficacy belief of principals and the behaviours which aim to establish a positive teaching environment (setting aims, providing professional development, running an educational programme) (Leithwood & Jantzi, 2008). The self-efficacy of principals helps them evaluate themselves and their capacities drawing lessons from their previous performances and outcomes at school (Bandura, 1997). According to social cognitive theory, self-efficacy is an important concept for principals and teachers as it affects what they can do before, during and after their teaching functions (Ashton & Webb, 1986).

Most of the self-efficacy studies focus on candidate teachers (Barut, 2011; Britner & Pajares, 2006; Brown, 1997; Chacon, 2005; Hampton & Mason, 2003; White, 2009; Palmer, 2006; Ruble, Usher, & McGrew, 2011). Some studies have also looked into the relationship between self-efficacy and leadership (Paglis & Green, 2002; Popper, Amit, Gal, Mishkal Sinai, & Lisak, 2004; Semadar, Robins, & Ferris, 2006). Further studies question the effect of self-efficacy in the education process (Colquitt, LePine, & Noe, 2000; Gist, 1986; Gist, Schwoerer, & Rosen, 1989; Pajares & Cheong, 2003; Parlar, 2009). Moreover, the relationship between stress and self-efficacy is analysed in some studies (Bandura, 2001; Lu, Siu, & Cooper, 2005; Siu, Spector, Cooper, & Lu, 2005). It can be seen that the relationship between self-efficacy and performance is also intensely examined (Chen et al., 2002; Gist, 1989; Heslin & Latham, 2004; Prussia, Anderson, & Manz, 1998; Pulakos et al., 2002; Stajkovic & Luthans, 1998a). In addition, the relationship between self-efficacy and job satisfaction is examined in several studies (Baggerly & Osborn, 2006; Siu et al., 2005). There is also a study that investigates the relationship between school principals' self-efficacy and their taking initiative behaviours (Akin, 2012). As well as the relationship between employee empowerment and self-efficacy (Bandura, 1988; Cherniss, 1997). Yet, there is few studies looking into the relationship between school principals' personality traits and self-efficacy beliefs about managerial issues were found in the literature. In one of these studies, Çalık, Çoban, and Özdemir (2019) have revealed that there is a positive relationship between school principals' personality

traits and technological leadership self-efficacy skills. Tschannen Moran and Gereis (2004) states in their study that school principal's self-efficacy can affect school environment, teachers' performance and students' achievement. School principals who have high self-efficacy tend to carry out difficult jobs and make more effort to do these jobs (Speier & Frese, 1997). Within this context, it can be predicted that school principal's self-efficacy is important in transforming his/her potential into behaviour. Therefore, investigating the relationship between school principals' personality traits and administrative self-efficacy beliefs can contribute to the leadership literature.

### *Purpose of the Study*

The aim of this study is to look into the relationship between personality traits and administrative self-efficacy analysing the views of school principals. Therefore, the paper seeks to answer the following research questions.

1. How do school principals' personality traits and self-efficacy views range?
2. Is there a significant relationship between school principals' personality traits and administrative self-efficacy according to school principals' views?

## **Method**

### *Study Group*

This research employs the correlational survey model. The population of the study is composed of 1031 school principals working at preschool, primary school, secondary school, high school and adult education institutions in 24 different districts of Ankara. It is aimed to reach the whole population in the study, so sample has not been defined. In this context, the questionnaires were distributed to 959 principals, and 643 (%62) of them answered and returned the completed survey for analysis. 11% (70) of principals were women and 89% (573) of them were men. In terms of level of education, 34 (5%), 212 (33%), 171 (27%), 138 (22%) and 44 (7%) of school principals were working at pre-school, primary school, secondary school, high school and other education institutions respectively whereas 44 (%7) of them were working both in primary and secondary schools. In terms of length of service, 9 (1%) of them had between 1 and 9 years of experience, 216 of them (34%) had between 10 and 19 years, 264 of them (41%) had between 20 and 29 years and 154 (24%) of them over 30 years of experience. Regarding their degrees, 44 (7%), 386 (60%), 204 (32%) and 9 (1%) of school principals had associate's, bachelor's, master's and PhD degree respectively.

### *Data Collection Tools*

#### *Big Five Inventory (BFI)*

BFI was developed by Benet Martinez and John (1998) and it was adapted for the Turkish context by Sümer and Sümer (2005). Its validity and reliability were re-tested in other studies (Basım, Çetin, & Tabak, 2009; Sümer, Lajunen, & Özkan, 2005; Ülke, 2006). BFI is a five-point Likert scale which has 44 items. BFI has five subscales. Neuroticism is composed of 8 items (sample item: I see myself as someone who is depressed, feeling blue). Extraversion has 8 items (sample item: I see myself as someone who is outgoing, sociable). Agreeableness includes 9 items (sample item: I see myself as someone who has a forgiving nature). Conscientiousness has 9 items (sample item: I see myself as someone who does a thorough job). Finally, openness consists of 10 items (sample item: I see myself as someone who is inventive). The format of Likert items is expressed through a scale ranging from "Strongly Disagree = 1" to "Strongly Agree = 5". High points obtained in the various factors of BFI means that the relevant personality traits are high.

According to the goodness of fit index results of Confirmatory Factor Analysis (CFA), that has been conducted to determine the conformity of the hypothetic model, CFI has been determined as .90. Bartholomew, Steele, Moustaki, and Galbraith (2008) indicates that when the CFI value is close to 1, it shows good conformity of model and data. In addition to this, when one of the goodness statistics chi-square is divided to degree of freedom, it is found to be ( $\chi^2/df$ ) 3.2. According to Çokluk, Şekercioğlu, and Büyüköztürk (2018) if ratio of chi-square to degree of freedom is below 5, it is an indicator of

medium level of conformity. According to another CFA analysis RMSEA has been found as .06. Kline (2016) indicates that RMSA value that is between .05 and .08 is adequate for model conformity. Moreover, GFI (.80) is at an acceptable level. This is because of the fact that GFI value is responsive to sample size (Çokluk et al., 2018). The results of the CFA analysis reveals that goodness of fit index of five factor model of BFI is acceptable. In other words, the five-factor structure of the scale is confirmed. Cronbach's alpha coefficients for the sub-factors of BFI in this study are calculated as .67, .60, .58, .69 and .73 for neuroticism, extraversion, agreeableness, conscientiousness and openness respectively. According to Ebel and Frisbie (1991) when deciding about individuals of a group, the minimum value is acceptable at the level of .65. The findings of the analysis show that the sub-scales of BFI are reliable.

#### *Principal Self-Efficacy Scale (PSES-T)*

PSES-T was developed to determine the self-efficacy perceptions of school principals (Tschannen Moran & Garies, 2004) and it was adapted to the Turkish context by Özer (2013). The Turkish version of PSES (PSES-T) is a five-point Likert scale and has 14 items. The PSES consists of 3 subscales: Instructional Leadership self-efficacy which has four items (sample item: motivate teachers), Moral Leadership self-efficacy which includes four items (sample item: promote the prevailing values of the community in your school) and administrative self-efficacy which has 6 items (sample item: maintain control of your own daily schedule). The format of Likert items are expressed through a scale ranging from "Strongly Disagree = 1" to "Strongly Agree = 5". High points obtained in the various factors of PSES-T means that self-efficacy in that the relevant subscale is high. CFA results indicated that the three-factor PSES meets the goodness of fit criteria ( $\chi^2/df = 2.8$ ; RMSEA = .05; CFI = .98; GFI = .96). In this study, the reliability coefficient for the scale is .74 for the whole of the scale, .74 for self-efficacy sub-scale, .75 for instructional leadership sub-scale and .71 for moral leadership sub-scale. These findings provide evidence for the reliability and validity of the Turkish version of PSES.

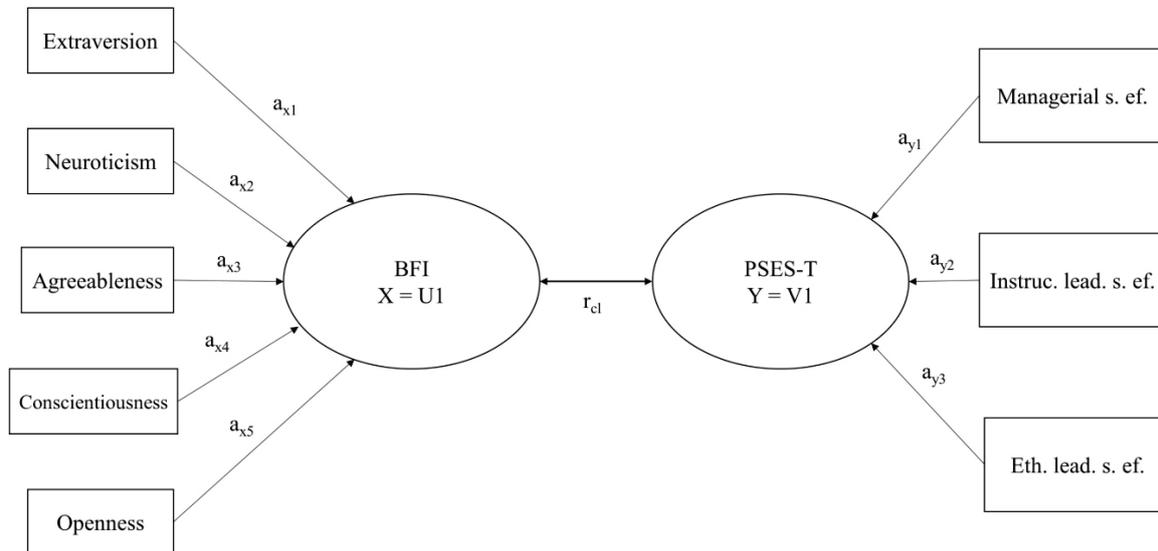
#### *Procedures*

Across Turkey, new principals were assigned on 13<sup>th</sup> June 2014 and the need for strengthening the administrative skills of these principals came up. The Ankara Provincial Directorate of National Education launched an "Educational Management Course" between January, 5<sup>th</sup> and March, 27<sup>th</sup> to develop the professional competence of the school principals who were re-appointed or appointed for the first time. This course was planned as a 90-hour training session and it was conducted in 17 districts. The subjects of this study are the school principals who participated in this course and completed voluntarily the scales that were distributed to them during their break time. It took approximately 15 minutes for the participants to complete the scales, and the research was conducted with the support of the Research and Development unit of the Ankara Directorate of National Education.

#### *Data Analysis*

Descriptive statistics and canonical correlation are used for data analysis. Canonical correlation analysis is a technique which investigates the linear relationships and the correlation between two multidimensional sets of variables. The aim of this technique is to raise the level of relationship between two data sets (Anderson, 2003; Hardle & Simar, 2003; Tabachnick & Fidell, 2007). In other words, it can be describing as defining variable sets that are X and Y variables' a linear function by making the correlation between  $V_i$  and  $W_i$  variables maximum (Kalaycı, 2014). Although this description is similar to multi regression analysis, there are some important differences between these two methods. For example, in multi regression analysis, the relationship between only one predictor variable and a range of predictor variables is investigated. Therefore, multi regression analysis is not a real multi variable technique (Marcoulides & Hershberger, 1997). The statistical results of canonical correlation analysis are significant if there is a linear combination between the dependent and independent variable (Stangor, 2011). Canonical correlation analysis reduces the rate of Type I error by reducing the number of analysis and it increases the reliability of results (Shavelson, 1988; Thompson, 1991, as cited in Capraro & Capraro, 2001). In this research it is aimed to investigate two latent variables described by at least two observed variables. Moreover, because of the fact that there are more than one dependent variables and all variables are added in the analysis at the same time, canonical correlation analysis

technique has been preferred in this study. According to the results of this analysis, if there is linear combination between dependent and independent variables, the results of the analysis in statistically significant (Stangor, 2011). This research aimed to explore the relationship between the PSES-T subscales of administrative self-efficacy, instructional leadership self-efficacy and moral leadership self-efficacy and the BFI's subscales of extraversion, agreeableness, conscientiousness, openness and neuroticism. There are two sets of variables used in the research; the first has three variables and the second has five variables, and, therefore, the maximum pair of canonical variables is three. Figure 1 presents the analytical approach related to canonical correlation analysis of this research.



**Figure 1.** Analytical Approach Related to Canonical Correlation

According to Figure 1,  $a_{x1}$ ,  $a_{x2}$ ... represent the canonical loads of variable X,  $a_{y1}$ ,  $a_{y2}$ ... represent the canonical loads of variable Y,  $r_{c1}$  represents the correlation between the variables.

For a canonical correlation analysis, the sets of variables should provide some hypotheses. The canonical correlation results should be evaluated in terms of linearity, the multivariate normal distribution and the multi-collinearity assumptions (Kalaycı, 2014). The multi-linearity problem between the variables of PSES-T and BFI is analysed on the basis of the correlation coefficients between the variables (See Table 1). As seen in Table 1, the highest correlation among the variables examined is between the administrative self-efficacy and instructional leadership self-efficacy dimensions ( $r = .55$ ;  $p < .05$ ). The variables with the lowest correlation are the Agreeableness and moral leadership self-efficacy subscales ( $r = .02$ ;  $p < .05$ ). According to Büyüköztürk (2009), to argue that there is a multi-collinearity problem between the independent variables the correlation value of variables should be at least .80. Therefore, there is no multi-collinearity problem between the variable sets. In addition, tolerance and VIF values have been evaluated in order to determine whether multi-collinearity problem exist or not. Accordingly, the results have shown that tolerance values are between .53 and .95; VIF values are between 1.05 and 1.88. Tolerance value above .20 and VIF value under 10 indicate that there is no multi-collinearity problem (Büyüköztürk, 2009). Kurtosis and skewness coefficients are used to identify whether the data set has a normal distribution or not. The analysis results show that the skewness coefficients of two variables range between .31 and .98 whereas the kurtosis coefficient values are between .09 and .99. The skewness and kurtosis values were within the acceptable interval ( $\pm 1,5$ ), thus it was accepted that the data set had a normal distribution (Büyüköztürk, 2009). Scatter diagram matrices are formed within the variable sets to test the linearity hypothesis of BFI and PSES-T, and the distributions are scattered in an ellipse shape. Consequently, the hypothesis requirement for conducting a canonical correlation analysis is met.

## Results

Table 1 presents the means, standard deviation and Pearson correlation coefficient values regarding the subscales of BFI and PSES-T.

**Table 1.** Means, Standard Deviations and Correlations of Principals' Scores for the Study Variables ( $n = 643$ )

Variables	$\bar{X}$	SD	1	2	3	4	5	6	7	8
1. Extraversion	3.62	.39	1							
2. Neuroticism	3.44	.34	.26*	1						
3. Agreeableness	3.11	.39	.24*	.18*	1					
4. Conscientiousness	3.64	.43	.44*	.28*	.18*	1				
5. Openness	3.29	.34	.39*	.26*	.41*	.45*	1			
6. Managerial s. ef.	4.24	.43	.13*	.09*	.00*	.18	.05*	1		
7. Instruc. lead. s. ef.	4.24	.51	.20*	.06*	.02*	.03*	.15*	.55*	1	
8. Eth. lead. s. ef.	4.25	.83	.13*	.07*	.02*	.17*	.09*	.37*	.48*	1

\*  $p < .05$

As it can be seen in Table 1, the administrative self-efficacy perceptions of school principals are relatively high and participants' mean scores in the five subscales of BFI are at a medium level. School principals get the highest point in the conscientiousness subscale of BFI ( $M = 3.64$ ;  $SD = .43$ ). As table 1 shows, the highest Pearson correlation coefficient between the subscales of BFI and PSES-T is observed in the relationship between extraversion and instructional leadership efficacy ( $r = .20$ ;  $p < .05$ ). There is no correlation between administrative self-efficacy and agreeableness ( $r = .00$ ;  $p < .05$ ). By and large, there is a positive, low-level and significant correlation between the BFI and PSES-T subscales.

### Results of Canonical Correlation

As a result of the canonical correlation analysis, three pairs of canonical variables and canonical correlation coefficients are obtained. It was tested subsequently whether the canonical model is statistically significant, and the Lambda statistics of Wilks was used as a multivariate test of significance. Table 2 presents canonical correlation coefficient, eigenvalue, Wilks' Lambda, F value, degree of freedom and significance level.

**Table 2.** Correlation Coefficients, Wilks' Lambda and Significance Tests Related to Canonical Variables

Roots	$r_c$	$r_c^2$	Eigenvalue	Wilks' Lambda	F	df	p
1	.315	.099	.110	.892	4.962	15	.000
2	.088	.008	.008	.990	.831	8	.576
3	.052	.003	.003	.997	.577	3	.630

According to Table 2, when the F values were analysed using Wilks' lambda values, it was found out that the model between the chi-square values and the first canonical variable pair is significant ( $Wilk's \lambda = 0.89$ ,  $Chi^2(15) = 73.16$ ,  $p < .05$ ), whereas the second canonical variable pair ( $Wilk's \lambda = 0.98$ ,  $Chi^2(8) = 6.64$ ,  $p > .05$ ) and the third canonical variable pair ( $Wilk's \lambda = 0.99$ ,  $Chi^2(3) = 1.73$ ,  $p > .05$ ) were not statistically significant. Tabachnick and Fidell (2007) argue that in canonical correlation analysis only the statistically significant canonical functions should be read. Therefore, when the first canonical variable pair is analysed, it is observed that the value of correlation set is .315. The square of this value represents the common variance between dependent and independent variables. Within this scope, it is determined that first canonical correlation set shares 9.9% of the variance.

Standardised canonical correlation coefficients were examined to observe the relationship between the variables in each set and canonical variables. Standardised coefficients show the standard deviation change in a canonical variable in response to 1 standard deviation increase in the original variable. In other words, these coefficients form a canonical variable in a set and show the impact percentage of the original variables in that set (Sharma, 1996). Accordingly, standardised correlation coefficients related to the variables in the first set are presented in Table 3.

**Table 3.** Standardised Canonical Correlation Coefficients of Variables in the First and Second Sets and Loading

<i>Variable</i>	<i>r<sub>c1</sub></i>	
	<i>Canonical Correlations</i>	<i>Loading</i>
<i>First Set (BFI)</i>		
Extraversion	-.327	-.656
Neuroticism	.049	-.246
Agreeableness	.213	-.036
Conscientiousness	-.812	-.942
Openness	-.085	-.483
Explained Variance (%)	%32	
<i>Second Set (PSES-T)</i>		
Administrative Self-efficacy	-.068	-.610
Instructional Leadership Self-efficacy	-.869	-.986
Ethical Leadership Self-efficacy	-.167	-.610
Explained Variance (%)	%57	

According to Table 3, the equation of U<sub>1</sub> canonical variable acquired from standardized coefficients can be formulized as equilibrium 1.

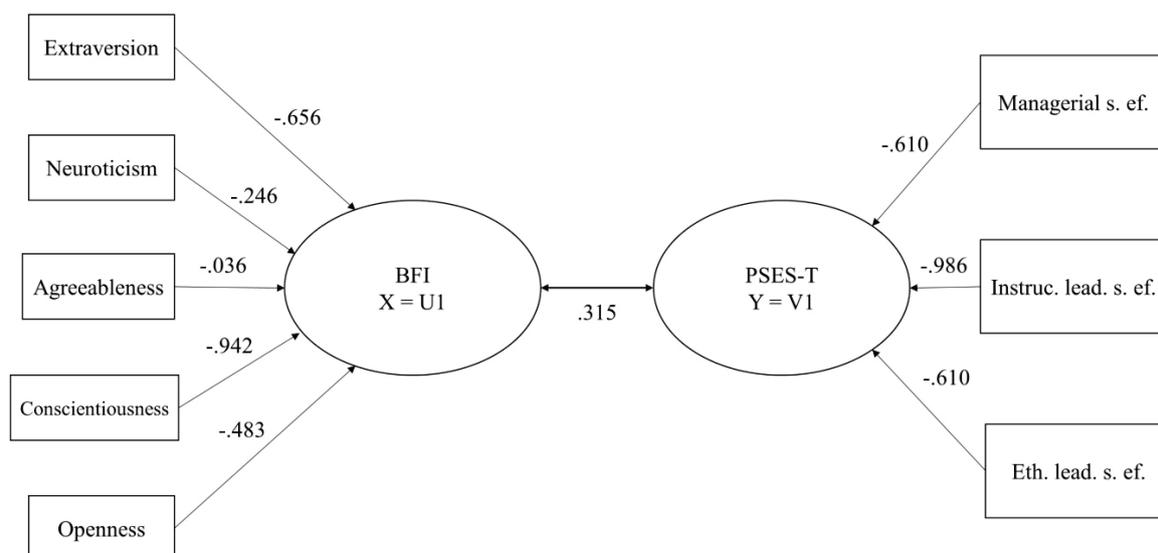
$$U_1 = -.327^* \text{ Extraversion} + .049^* \text{ Neuroticism} + .213^* \text{ Agreeableness} + -.812^* \text{ Conscientiousness} + -.085^* \text{ Openness} \quad (1)$$

According to this formula, it is obvious that the highest contribution to U<sub>1</sub> canonical variable is by conscientiousness variable (.812). Nevertheless, the variable with the lowest level is neuroticism (.049). When the standardized correlation coefficients of the second set's variables are investigated, it is seen that the highest level of contribution to canonical variable is by instructional leadership self-efficacy (-.869). On the other hand, the variable with the lowest level of contribution is administrative self-efficacy (-.068). The equation related to second canonical variable can be formulized as equilibrium 2.

$$V_1 = -.068^* \text{ Administrative Self-efficacy} + -.869^* \text{ Instructional Leadership Self-efficacy} + -.167^* \text{ Ethical Leadership Self-efficacy} \quad (2)$$

Canonical loads of each set represent the variance that variables explain in the canonical correlation analyze. This value shows the mean of the squares of canonical loads of the related variable. According to Tabachnick and Fidell (2007), the value being more than .30 shows that the variable is a part of the related set. In this context, Extraversion (-.656), Conscientiousness (-.942) and Openness (-.483) may be considered as a part of the first set and Administrative Self-efficacy (-.610), Instructional Leadership Self-efficacy (-.986) and Ethical Leadership Self-efficacy (-.610) may be considered as a part of the second set with regard to their canonical load values.

Canonical loads between canonical variables and correlations between canonical variables are summarized in Figure 2.



**Figure 2.** The Canonical Relationship Diagram between BFI and PSES-T

### Discussion, Conclusion and Suggestions

This research looked into the relationship between the personality traits of school principals and their administrative self-efficacy. The research was conducted with 643 principals working in Ankara.

The findings show that school principals have relatively high self-efficacy perceptions. This finding mirrors the results of other research. For instance, Smith et al. (2006) found out that school principals have high administrative self-efficacy perceptions. A possible reason why principals have high administrative self-efficacy is that their need for achievement is high. Individuals with a high need for achievement wish to achieve challenging goals and to overcome any challenges in the way of these goals. Moreover, these individuals set high standards for themselves and want to achieve these standards (Hall & Lindzey, 1985). There are several problems that principals have to cope with. Problems related to teachers, students, school climate and the physical surrounding of the school are the leading ones (Demirtaş et al., 2007). To cope with these problems and to achieve the educational aims of the school, principals need to hold administrative skills (Katz, 1974). In addition, one of the reasons why administrative self-efficacy perceptions are high may be their earlier professional experiences (Ziegler, 2005). Moreover, school principals' earlier successful experiences may increase their self-efficacy perceptions (Crain, 2000).

School principals got the highest point average in the *conscientiousness* and *extraversion* subscales. This finding is similar with the findings from previous research conducted on school principals (Lazaridou & Beka, 2015; Yıldızoğlu & Burgaz, 2014) which found that principals' points in the *conscientiousness* and *extraversion* subscales were relatively high. Extraversion is listed as a typical characteristic of a leader since the first years of leadership research (Stogdill, 1974; Yukl, 2010). Extraversion can be explained by McClelland's *Achievement-Motivation Theory*. Extroverted individuals desire to be in affiliation with other people. These individuals want to be members of a group and desire that other people would have a positive perception about them. Extroverted people prefer to collaborate rather than compete with others (Kreitner & Kinicki, 2004). According to Miner (1992), effective managerial performance can be explained to a large extent by managers' high need for affiliation and establishing relationships. Within this scope, the high extraversion points of school principals are congruent with McClelland's motivation theory. In other words, the high extraversion points of school principals can be an indication for their high need for affiliation. Principals' conscientiousness points were also relatively high in the research. Principals with high conscientiousness points are arguably

more disciplined and controlled. In other words, school principals have a determined personality structure and they behave in line with the agreed plans (Burger, 2006).

Principals received the lowest average points in the *agreeableness* subscale. People who have low agreeableness points are sceptical (Burger, 2006). School principals with this characteristic may approach the school's human resources sceptically and they may have little confidence in them. This situation can be explained if we take into account Turkish culture's low uncertainty avoidance (Hofstede, Hofstede, & Minkov, 2010). In Turkey, school principals have no role in the recruitment of human resources in schools. Therefore, they have to work with people that they have never met before. This leads to principals feeling uncertainty, and the low uncertainty avoidance among principals is a possible reason for their low agreeableness points.

This research looked into the relationship between self-efficacy and personality traits. The findings show that there is a positive correlation between all the subscales of the two variables. The canonical correlation analysis reveals that five subscales of BFI explain around 9.9% of PSES-T. This finding is consistent with other research. For instance, Hamzadayı and Büyükkız (2015) confirmed that personality is an important predictor of self-efficacy. According to the research results, each subscale of BFI is a significant predictor of self-efficacy of school principals. The canonical correlation analysis showed that the *conscientiousness* subscale contributed the most to the actualisation of principals' administrative self-efficacy. In schools, principals have many responsibilities, and the duties and tasks of principals and school organisations range widely. To manage and run such a complicated system efficiently, managers should have a strong sense of responsibility. To achieve tasks and duties requiring responsibility, principals should feel competent enough. Hence, this study provided evidence for this argument.

Previous researches reveal that factors of personality are vital reasons of self-efficacy. For instance, Kramer and Winter (2008) reveal in their study that there is a relationship between extravert personality and self-efficacy. Therefore, the relationship between extraversion and self-efficacy beliefs in present study is similar to Kramer and Winter's result. Moreover, self-efficacy belief has been found in relation with neuroticism factor of personality (Judge, Bono & Locke, 2000). That result in the literature is also parallel with the result of present study. Similarly, it has been observed in this study that administrative self-efficacy is in relation with conscientiousness factor of personality. The results of Judge et al. (2007) study support that finding. So, it can be seen that there are similarities between the findings of the present study and previous studies that focused on the relationships between self-efficacy and personality.

The study reveals that the self-efficacy perceptions of school principals are high. School principals are also extroverted people with a high sense of responsibility. There is relationship between personality types and principals' administrative self-efficacy beliefs. Principals with a high sense of responsibility have also strong self-efficacy beliefs. This research was conducted in only one city, therefore there is a need for further research in other areas of Turkey. Further research can focus for example on examining developed, developing and less-developed countries in a comparative study. Studying school principals' personality traits along with other variables such as leadership, motivation and organisational commitment can also contribute to the literature. In practice, the personality traits and structures of principal candidates can be evaluated in the recruitment process.

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