Applied Research on English Language

V. 9 N. 3 2020
pp: 325-348
http://uijs.ui.ac.ir/are

DOI: 10.22108/are.2020.118591.1486

The Relationship between Teacher Personality and Teacher Interpersonal Behavior: The Case of Iranian Teacher Educators

Abolfazl Khodamoradi [1*], Seyed Hassan Talebi [2], Mojtaba Maghsoudi [1]

[1] *Assistant Professor, Department of English Language, Farhangian University, Tehran, Iran*
[2] *Assistant Professor, Faculty of Humanities and Social Sciences, Department of English Language and Literature, University of Mazandaran, Iran*

Received: 2019/08/04 **Accepted: 2020/02/08**

Abstract: This study examined the association between teacher educators' personality traits and their interpersonal behavior at Farhangian University (Teacher Education University in Iran). A sample of 148 student teachers majoring in Teaching English as a Foreign Language (TEFL) at two branches of Iranian Teacher Education University evaluated their teacher educators' interpersonal behavior by the questionnaire for teacher interaction (QTI). The teacher educators (N=17) also completed the QTI and the NEO Five-Factor Inventory (NEO-FFI). The results of correlational analyses indicated significant associations between educators' personality traits and their interpersonal behavior. More associations were observed between educators' personality and student teachers' perceptions of interpersonal behavior while fewer associations were observed between educators' personality and the educators' self-perceptions. Moreover, the results revealed that all educators' personality traits except for Openness were significantly correlated with the two interpersonal behavior dimensions of Influence and Proximity. When stepwise regression analyses were done for the Influence dimension, the strongest model for prediction included Neuroticism and Conscientiousness while for the second dimension, Agreeableness emerged as the sole, significant predictor of educator Proximity.

Keywords: Teacher Personality, Teacher Interpersonal Behavior, the QTI, the NEO Five-Factor Inventory.

[*] **Corresponding Author.**

Authors' Email Address:
[1] **Abolfazl Khodamoradi** (khodamoradi@cfu.ac.ir), [2] **Seyed Hassan Talebi** (hstalebi@umz.ac.ir)**, Mojtaba Maghsoudi** (maghsudi@cfu.ac.ir)
ISSN (Online): 2322-5343**, ISSN (Print):** 2252-0198

Introduction

The classroom is a microsystem in which the quality and quantity of its outcomes are affected by a variety of variables such as the time, subject matter, resources, instruction, and materials. Definitely, in this complex and interconnected environment, the quality of the classroom climate which is defined as "the collective perceptions of students with respect to the mutual relationships within the classroom" (Maslowski, 2003), is also influenced by some latent variables such as the teacher and student personality and their interpersonal relationships. These hidden variables are so important that a distinction is made between the pedagogical perspective of teaching that includes the selection and organization of materials, methods of instruction and assessment, and the interpersonal perspective that focuses on the interpersonal relationship between teacher and student (Van Petegem, Creemers, Rossel, & Aelterman, 2005).

An interpersonal perspective on teaching, which is specifically concerned with creating and maintaining a positive, warm classroom atmosphere conducive to learning (Williams & Burden, 1997), entails exploring the nature of teacher-student interpersonal relationships and the relevant variables like attitude, self-concept, motivation, and personality. In this line of inquiry, investigating the relationship between teacher personality and teacher–student interaction as an important part of the teaching and learning processes (den Brok, Brekelmans, & Wubbels, 2004) can illuminate the dimensions inherent in classroom climate.

Teacher interpersonal behavior refers to the way in which teachers interact with students in a classroom, which affects students' perception of the learning environment (Wubbels & Levy, 1993). Generally, as far as interactional patterns are concerned, teachers lie between two extremes of a continuum; one advocating control and dominance over the situation, and the other one preferring a pleasant and cooperative classroom atmosphere where students feel safe to take risks and be creative. Such personal preferences are determined largely by teachers' background characteristics such as personality (Van Petegem, et al., 2005).

Personality as "those characteristics of the person that account for consistent patterns of feelings, thinking, and behaving" (Pervin, Cervone, & John, 2005, p. 6) pushes individuals to view phenomena and act or behave in response to them in a particular way. Caralis and Haslam (2004) believe that people with different personalities approach their relationships in distinctive ways. Therefore, individuals' personality traits can be associated with, or even can determine their interpersonal tendencies or preferences. Therefore, exploring the relationship between

teachers' personality and their interpersonal behavior can shed some light on the influential components of instruction in all educational settings.

In this line of inquiry, this study aimed to explore the relationship between teacher-educators' personality and their interpersonal behavior at Farhangian University, the Teacher Education University in Iran. Although numerous studies have been conducted on the relationship between teacher personality and educational outcomes (e.g., Hakimi, Hejazi, & Gholamali, 2011), students' attitudes (e.g. den Brok, Fisher, & Scott, 2005), or students' motivation (e.g., Zarabian, Farajollahi, Yousefpour, & Sajadiseresht, 2015), no research, to the best of our knowledge, has been conducted linking this variable to interpersonal behavior in the given contexts. Since educators' interpersonal behavior and their personality seem to be interrelated, finding any relationship between these two variables can be illuminating. The findings of this study will pave the way for the educators to reflect on their interpersonal behaviors, view them through the lens of their personal characteristics, and provide them with insights into constructing an appropriate learning environment for effective teaching and learning.

Literature Review

Teaching as a multifaceted endeavor is a function of both intrapersonal and interpersonal relationships within and between interlocutors in the classroom. On the one hand, the inner forces such as individuals' attitude, motivation, or personality determine the quality of teaching practices. On the other hand, their actual and perceived interactional behaviors affect the outcome of such practices. Therefore, depicting a clear picture of teaching entails incorporating psychological, interpersonal, and pedagogical perspectives and exploring the possible relationships between the relevant variables.

Personality as a psychological construct consists of stable characteristics that explain why a person behaves in a particular way (Mullins, 2005). McCrae and Costa (1993) define personality traits as enduring dispositions that can be inferred from patterns of behavior, are stable across long periods of time, and are similarly assessed by different observers. They are configured somewhere between 20 and 30 (McCrae & Costa, 1999), will characterize the person for years to come (Barrick & Mount, 2005; John & Sirvastava, 1999; McCrae & Costa, 1990).

Personality traits have become an area of keen interest for researchers in psychology. Over the years, considerable efforts have been made to find association between personality traits and other variables (e.g. Nadeem, Mahmood, & Saleem, 2018; Navidinia, Zangooei, &

Ghazanfari, 2015; Yu, & Zhu, 2011). Education is no exception in this regard. Research on teacher personality has been among the education-related areas of research that has long been of interest to education researchers (e.g., Barr, 1952; Tyler, 1960) assuming that it influences the behavior of the teacher in diverse ways, such as interaction with students, teaching methods selected, and learning experiences chosen (Murray, 1972).

To understand the nature of personality, researchers have proposed numerous personality frameworks such as the HEXACO (Ashton & Lee, 2007), Myers-Briggs Type Indicator (Myers, McCaulley, Quenk, & Hammer, 1998), and 16 personality factors (Cattell, Eber, & Tatsuoka, 1970). However, the Big Five personality model acts as the most acceptable model in the fields of psychological and behavioral research (Hazrati-Viari, Rad, & Torabi, 2012; John, Donahue, & Kentle, 1991; John, Naumann, & Soto, 2008). The Big Five personality framework that is also known as the five-factor model (FFM) is a taxonomy for personality traits.

Early research into personality followed trait theory that took a lexical approach to personality assuming that traits can be described using single adjectives or descriptive phrases. In 1936, psychologists Gordon Allport and Henry Odbert extracted approximately 4,500 terms that described personality traits. Later attempts were made to group these terms under superordinate factors. Later, Cattell (1943) developed a 16-item inventory of personality traits and created the Sixteen Personality Factor Questionnaire (16 PF). This inventory was cluster-analyzed by Costa and McCrae (1976) to initially create three domains: neuroticism, extraversion, and openness. Agreeableness and conscientiousness were later added to create five factors that were similar to the Big Five framework domains (Kim, Jörg, & Klassen, 2019). Some instruments have been designed based the model to measure the domains, such as 12-item NEO Personality Inventory (Costa & McCrae 1985), the 240-item Revised NEO Personality Inventory (Costa & McCrae, 1992), and 60-item NEO Five-Factor Inventory (Costa & McCrae, 1992).

In The Big Five personality trait model, the five overarching personality dimensions are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness (Piedmont & Weinstein, 1994). Each of these dimensions encompasses numerous traits along a continuum. Extraversion, whose traits range from shy to bold, is characterized by sociability, assertiveness, social dominance, ambition, tendencies towards action, sensation seeking, and the experience of positive affect (Bozionelos, 2004). Agreeableness is associated with the quality of interpersonal interaction along a continuum with altruism, friendliness, and

modesty on one side, and antagonism, impression management, and selfishness on the other side (Bozionelos, 2004).

Moreover, Conscientiousness, which refers to the amount of persistence, organization, and motivation in goal-directed behaviors, focuses on how people approach their work. People in high conscientiousness have sense of duty and obligation to their work and have high job performance, career success, motivation, and job satisfaction (Judge, Heller & Mount, 2002). Neuroticism, which encompasses characteristics that include excessive worry, pessimism, low confidence and tendencies to experience negative emotions (Bozionelos, 2004), includes moody, envious, and touchy at one end of the continuum and calm and relaxed at the other end. Openness, which reflects the degree of intellectual curiosity (Tomšik, & Gati, 2018), includes creative, philosophical, and complex at one end of the continuum and unintellectual and simple at the other end (Costa & McCrae, 1992).

The literature on teacher-student interpersonal relationship has also a long and rich history. The theoretical basis behind research on teacher–student interpersonal dates back to the 50s when Leary (1957) proposed a general model for interpersonal diagnosis of personality to describe the perceptions students have of the behavior of their teacher. Leary placed personality at the heart of interpersonal behavior believing that the way humans communicate is indicative of their personality (Wubbels, Créton, Levy, & Hooymayers, 1993).

Leary constructed a circumplex model with two orthogonal bi-dimensional axes, namely Dominance-Submission axis, and Affection-Hostility axis. The model was re-conceptualized by Wubbels, Créton and Hooymayers (1985) with two dimensions of Control (Dominance-Submission) and Afifliation (Hostilit□-Affection). Control measures the degree to which the teacher exercises inlfuence on the students (dominanc.), or is passively inlfuenced by them (submission), while Afifliation evaluates the degree to which teachers ca.. establish with their students' relational bonds based on cooperation (affection) or, they tend to conlfict with students (hostility) (Passini, Mo□inari, & Speltini, 2015).

Following Leary's circumplex model, Wubbels, Créton, and Hooymayers (1987) developed a model with the two orthogonal dimensions. In the given model, intermediate areas between Dominance, Cooperation, Submission, and Opposition divide the interpersonal circle into octants representing eight behaviors: Leadership (DC), Helpful/friendly (CD), Understanding (CS), Student responsibility (SC), Uncertain (SO), Dissatisfied (OS), Admonishing (OD), and Strict (DO). In this model, each quadrant encapsulates two sectors of

behavior. Each sector can be described in terms of the two dimensions. For example, Leadership (DC) is a sector that refers to a behavior with high dominance and some cooperativeness, or Strictness contains a high degree of influence and some degree of opposition (See Figure 1).

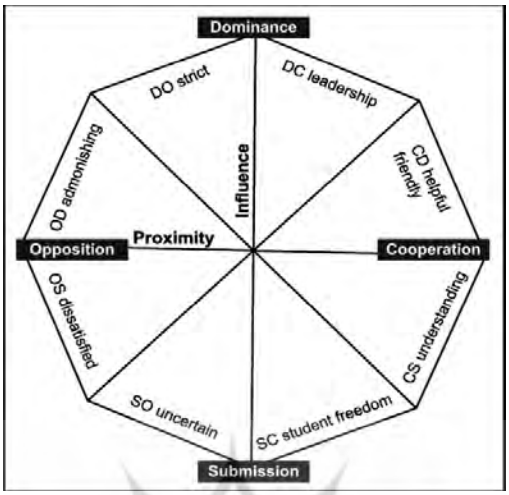

Figure 1. *The Model for Interpersonal Teacher Behavior (den Brok, Fisher, & Koul, 2005, p. 7)*

The Model for Interpersonal Teacher Behavior (MITB) provided the theoretical basis for designing an instrument, namely, the Questionnaire on Teacher Interaction (QTI). Initially, the QTI was developed in the Netherlands by Wubbels et al. (1985) with eight subscales and 77 items. Again, it was reduced to 64 items by Wubbels and Levy (1991) for use in the American context. A 48-item version was also validated for the Australian context by Fisher, Henderson, and Fraser (1995). The instrument has the capability to obtain the students' perceptions of their actual teacher and their ideal teacher, as well. Moreover, teachers can also be asked for their perceptions of their own interactional behaviors or the behaviors that they deem ideal (den Brok et al., 2004).

Many studies have investigated the relationship between student and teacher characteristics and students' perceptions of teacher behavior. Among these characteristics are student and teacher gender (e.g. Goh & Fraser, 1998), age (e.g. Ferguson & Fraser 1998), socio-economic status (e.g. Waldrip & Fisher, 1999), and attitudes (e.g. den Brok, et al., 2005). However, empirical studies on teacher personality and teacher interpersonal behavior are not so numerous. In one of the most relevant studies, Fisher, Harry, and Fraser (1998) investigated the relationship between student perceptions of teacher interpersonal behavior using the QTI and teacher personality using the MBTI in a sample of 108 Australian teachers.

The results indicated that there was a greater positive relationship between teacher personality and teachers' self-perception than between teacher personality and their students' perceptions. Moreover, it was found that teacher personality was associated with teacher self-perception of being Helping/friendly, Students responsibility, and Uncertainty. The students' perceptions of the teacher interpersonal behavior were also related to the teacher personality in Student responsibility subscale.

In another study, Hakimi, Hejazi, and Gholamali, (2011) investigated the relationships between personality traits and academic achievement among 285 students using NEO Big Five Personality Factors and student's GPA. The results revealed that personality traits were significantly related to academic achievement. Stepwise regression analysis also indicated personality characteristics accounted for 48 percent of variance in academic achievement. Moreover, the results showed that conscientiousness was the most important predictor variable. In another study, Navidinia, Zangooei, and Ghazanfari, (2015), tried to find out whether there was a significant relationship between EFL teachers' Big Five personality traits and their self-concept. One hundred twelve EFL teachers were asked to complete NEO Five Factor Inventory and Teacher Self-concept Evaluation Scale. The results indicated that self-concept was positively correlated with Neuroticism, Openness, and Conscientiousness, and negatively with Agreeableness.

Nadeem et al. (2018) also investigated the relationship between personality traits and interpersonal difficulties in 600 Pakistani university students using the Interpersonal Difficulties Scale and the Big Five Inventory. Analysis of the data revealed significant negative correlation between extraversion and interpersonal difficulties, and between conscientiousness and interpersonal difficulties, while a significant positive correlation was found between neuroticism and interpersonal difficulties.

As the nature of empirical studies indicates, exploring the relationship between teacher personality and student-teacher interactional patterns has been relatively overlooked. Considering that personality is at the heart of interpersonal behavior (Leary, 1957), conducting a study on the association between teacher personality and teacher interpersonal behavior seems to be among the top priorities in the educational settings. Therefore, the current study aimed to fill the void in the literature by answering the following research questions:

1. Are any of the educators' personality dimensions of the Big Five correlated with the student teachers' perceptions of their educators' interpersonal behavior subscales?

2. Are any of the educators' personality dimensions of the Big Five correlated with their own self-perceptions of interpersonal behavior subscales?

3. Which personality traits can statistically predict teacher educators' interpersonal behavior in terms of Inlfuence and Afifliation□□

Methods

Participants

The study involved an available sample of 148 student teachers majoring in Teaching English as a Foreign Language (TEFL) at two branches of Iranian Teacher Education University (Farhangian University; Markazi Province) and 17 teacher educators who had offered PK (Pedagogical Knowledge) and PCK (Pedagogical Content Knowledge) courses to the student teachers at the time of data collection. The samples were selected for convenience. The student teacher sample was comprised of 93 male student teachers (63 %) and 55 female ones (37 %). They were all sophomores who has passed CK, PK, and PCK courses within an in-service teacher educator program in three semesters. In the teacher educator sample, nine were males (53 %) and eight were females (47 %). Since most student teachers completed the interpersonal behavior questionnaire for more than one educator, a total number of 548 questionnaires for measuring educators' interpersonal behavior were completed.

Instruments

Two instruments were used in this study: the Australian versions of the Questionnaire on Teacher Interaction (QTI) initially developed by Wubbels and Levy (1993), and the NEO Five-Factor Inventory (NEO-FFI) by Costa and McCrae (1992).

The Questionnaire on Teacher Interaction: The QTI consists of 48 items that are divided into two major dimensions of Influence and Proximity and eight sub-scales, namely Leadership, Helpful/friendly, Understanding, Student responsibility, Uncertain, Dissatisfied, Admonishing, and Strict. Each subscale has six items to be responded on a five-point Likert scale (1-5) with the alternatives of never, seldom, sometimes, often, and always. Two versions of the QTI were adopted with a bit different wording. One questionnaire required the student teachers to state their perceptions of their educator's interpersonal behavior, and the other one asked the educators to determine their self-perceptions of interpersonal behavior. For example, item 44 in the Student Questionnaire was (*This educator was severe when marking papers);* while the same item in the Educator Questionnaire appeared as (*I was*

severe when marking papers.).

The NEO Five-Factor Inventory (NEO-FFI): Teacher educators' personality traits was measured using the self-report (Form S) version of the 60-item NEO-FFI which is the shortened form of NEO-PI-R, both made by Costa and McCrae (1992). Responses use a five-point Likert scale from strongly disagree to strongly agree. The scale is made up of ifve. factors (Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness to experience). Each of these factors consists of 12 items; higher scores on each scale indicate higher levels of that particular trait.

Procedure

At the end of the semester, when the student teachers and their educators had experienced a whole instructional course, the participants (student teachers) were informed about the purpose of the study and the content of the questionnaire. Then the QTIs were distributed among them. Since the student teachers were all sophomores in the fourth semester of their program and consequently, their English language proficiency was high enough to comprehend the items, the original Australian version of the QTI, rather than the translated version, was applied. The expert opinions regarding the clarity and general comprehensibility of items for the target group had been sought in advance. Moreover, in a pilot study, 16 student teachers had been asked to respond to the questionnaire and then interviewed for the comprehensibility and clarity of each item.

For the NEO Five-Factor inventory, which aimed at collecting data on educators' personality traits, the Persian translated version was applied. The given participants were also provided with the necessary information. Then, the questionnaires were manually handed out and collected for analysis. The Persian version was checked for reliability and the internal consistency reliability coefficients by the measure of Cronbach's alpha were reported to be 0.81, 0.72, 0.69, 0.75 and 0.87 for Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness, respectively. To assure the content validity, the correlation coefficient between the Form S and Form R had been calculated with the highest correlation in Extraversion (0.66) and the lowest in Agreeableness (0.54).

For assuring the reliability of the QTI, the internal consistencies were computed and established at an individual level. Analysis of responses to the QTI by the sample indicated that each QTI scale has acceptable internal consistency reliability with Cronbach alpha coefficients for various scales ranged from .69 to .84 for student teachers' questionnaire and

from .64 to .81 for educators' questionnaire when using the individual as the unit of analysis.

Data Analysis

To examine the internal consistency for the scales in the QTI, Cronbach's alpha, and to explore the relationships between educators' personality factors and their interpersonal behaviors, the Pearson correlation coefficient were applied. Moreover, to investigate whether educators' personality traits statistically predicted their interpersonal behaviors, stepwise regression analyses were used, with educators' personality as the dependent (response) variables, and interpersonal behaviors as the independent (exploratory) variables.

Results

To analyze the collected data, a general descriptive analysis was performed to display the student teachers' and their educators' perceptions of educator interpersonal behaviors and educators' personality traits numerically and graphically. The descriptive statistics for each of the QTI scales and personality traits are provided in Table 1.

For better visualization, Figure 2 shows a graphical display of the related data for the participants' perceptions of educator interpersonal behavior.

As the figure shows, the two data sets follow similar patterns. To find any statistically significant relationship between the educators' personality dimensions and educators' interpersonal behaviors, a series of correlational analyses were done. Since "the first step in performing correlation is to take a graphic look at the data" (Larson-Hall, 2010, p. 150), the scatterplots of the data were inspected for checking the linearity assumption. Besides linearity, further assumptions for correlation such as normality and homoscedasticity were checked. Both visual way (graphics such as Q-Q plots) and numerical way (the Kolmogorov–Smirnov goodness of-fit test) were used for checking normality assumption. The inspection of the scatterplots showed that some data sets did not meet linearity assumption satisfactorily. Moreover, the results of a series of Kolmogorov–Smirnov test indicated that in few pairs of correlated variables, the assumption of normality was not assured. Therefore, the non-parametric Spearman's rank order correlation test was used for all correlational analyses.

To address the first research question, correlational analyses were conducted to determine if there were any significant relationships between each of the Big Five personality traits and the student teachers' perceptions of educator interpersonal behaviors (see Table 2).

Table 1. *Descriptive Statistics of Research Variables*

Variables		Dimensions	Rater	N	Min	Max	Mean	SD
Personality		Neuroticism	Educator	17	12	29	19.41	6.44
		Extraversion	Educator	17	42	55	49.59	4.95
		Openness	Educator	17	36	42	39.00	2.12
		Agreeableness	Educator	17	45	51	48.18	2.33
		onscientiousness	Educator	17	49	59	5276	3.80
Interpersonal Behavior	Scales	Leadership	Student T	148	2.54	4.18	3.46	.74
			Educator	17	4.00	4.83	4.31	.32
		Understanding	Student T	148	3.00	4.46	3.84	.55
			Educator	17	3.33	4.83	4.03	.63
		Uncertain	Student T	148	1.74	2.79	2.25	.43
			Educator	17	1.66	1.83	1.75	.08
		Admonishing	Student T	148	1.27	1.91	1.59	.31
			Educator	17	1.00	2.50	1.58	.66
		Helping/F.	Student T	148	2.56	3.64	3.18	.44
			Educator	17	3.50	4.66	4.15	.45
		Students R.	Student T	148	2.58	3.34	2.96	.27
			Educator	17	2.66	3.33	2.91	.25
		Dissatisfied	Student T	148	1.46	2.18	1.77	.28
			Educator	17	1.16	1.66	1.39	.19
		Strict	Student T	148	1.98	3.16	2.59	.45
			Educator	17	2.33	3.16	2.65	.34
	Dimensions[1]	Influence	Student T	148	-1.11	1.71	.45	1.33
		Proximity	Student T	148	1.34	5.86	3.97	1.69

[1] Dimension scores were computed as follows: Influence = (.92∗DC) + (.38∗CD) – (.38∗CS) – (.92∗SC) – (.92∗SO) – (.38∗OS) + (.38∗OD) + (.92∗DO); Proximity = (.38∗DC) + (.92∗CD) + (.92∗CS) + (.38∗SC) – (.38∗SO) – (.92∗OS) – (.92∗OD) – (.38∗DO). (The numbers before the scale labels represent the factor loadings.)

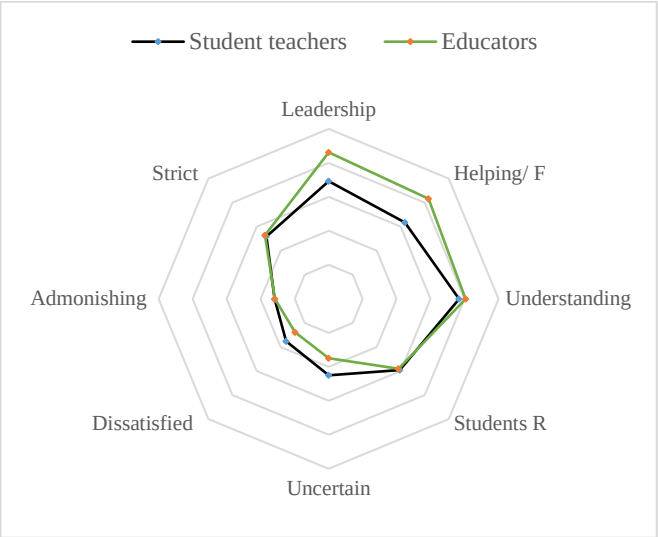

Figure 2. *Participants' Perceptions of Interpersonal Behavior*

Table 2. *Zero-order Correlations among Educators' Personality Traits and QTI Scales (Students' Perception)*

Interpersonal Behaviors	Statistics	Personality Traits / Dimensions: Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Leadership	ρ	.816**	-.875**	-.482	-.434	-.575*
	Sig. (2-Tailed)	.000	.000	.050	.082	.016
Understanding	ρ	.587*	-.646**	-.078	-.748**	-.743**
	Sig. (2-Tailed)	.013	.005	.767	.001	.001
Uncertain	ρ	-.587*	.646**	.078	.748**	.743**
	Sig. (2-Tailed)	.013	.005	.767	.001	.001
Admonishing	ρ	-.064	.176	-.390	.799**	.396
	Sig. (2-Tailed)	.80	.499	.122	.000	.115
Helping/F.	ρ	.587*	-.646**	-.078	-.748**	-.743*
	Sig. (2-Tailed)	.013	.005	.767	.001	.001
Students R.	ρ	.390	-.518	-.302	-.184	.027
	Sig. (2-Tailed)	.122	.053	.238	.478	.917
Dissatisfied	ρ	-.064	.176	-.390	.799**	.396
	Sig. (2-Tailed)	.809	.499	.122	.000	.115
Strict	ρ	.968**	-.916**	-.708	-.192	-.753**
	Sig. (2-Tailed)	.000	.000	.051	.460	.000

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

**. Correlation is significant at the 0.01 level (2-tailed).

As the results of table show, Neuroticism was significantly and positively related to Leadership (*ρ=.81, p<.01*), Helpful/friendly (*ρ=.58, p<.05*), Understanding (*ρ= .58, p<.05*), and Strict (*ρ= .96, p<.01*), and negatively to Uncertain behaviors (*ρ=-.58, p<.05*). Extroversion and Conscientiousness were significantly and positively related to Uncertain (*ρ= .64, p<.01; ρ= .74, p<.01*), and negatively to Leadership (*ρ= -.87, p<.01; ρ= -.57, p<.05*), Understanding (*ρ= -.64, p<.01; ρ= -.74, p<.01*), Helpful/friendly (*ρ= -.64, p<.01; ρ= -.74, p<.01*), and Strict behaviors (*ρ= -.91, p<.01; ρ= -.75, p<.01*). Agreeableness was positively related to Uncertain (*ρ= .74, p<.01*), Admonishing (ρ= .79, p<.01), and dissatisfied (*ρ=.79, p<.01*), and negatively to Understanding (*ρ= -.74, p<.01*), and Helpful/friendly behaviors (*ρ= -.74, p<.01*).

The same analyses were performed on the relationship between educators' personality traits and their self-perceptions of their interpersonal behaviors (see Table 3).

Table 3. *Zero-order Correlations among Educators' Personality Traits and QTI Scales (Self-Perception)*

Interpersonal Behaviors	Statistics	Personality Traits: Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
		Dimensions				
Leadership	ρ	-.739**	.686**	.304	.506*	.922**
	Sig. (2-tailed)	.001	.002	.236	.038	.000
Understanding	ρ	-.739**	.686**	.304	.506*	.922**
	Sig. (2-tailed)	.001	.002	.236	.038	.000
Uncertain	ρ	-.012	.146	.134	-.073	-.437
	Sig. (2-tailed)	.963	.577	.607	.780	.080
Admonishing	ρ	.159	-.003	-.510*	.718**	.101
	Sig. (2-tailed)	.542	.992	.036	.001	.699
Helping/F.	ρ	-.968**	.916**	.708**	.192	.753**
	Sig. (2-tailed)	.000	.000	.001	.460	.000
Students R.	ρ	-.264	.071	.391	-.418	.309
	Sig. (2-tailed)	.306	.788	.121	.095	.228
Dissatisfied	ρ	.579*	-.493*	-.191	-.429	-.875**
	Sig. (2-tailed)	.015	.044	.462	.086	.000
Strict	ρ	.340	-.429	.163	-.808**	-.595
	Sig. (2-tailed)	.182	.086	.532	.000	.052

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

**. Correlation is significant at the 0.01 level (2-tailed).

The results indicated that Neuroticism was significantly and positively related to Dissatisfied (ρ= .57, p<.05), and negatively to Leadership (ρ= -.73, p<.01), Understanding (ρ= -.73, p<.01), and Helping/friendly behaviors (ρ= -.96, p<.01). Interestingly, the same as what student teachers perceived, associations were observed between Extraversion and Conscientiousness personality types on the one hand and educators' self-perceptions of Leadership (ρ=.68, p<.01; ρ=.92, p<.01), Understanding (ρ= .68, p<.01; ρ= .92, p<.01), Helping/friendly (ρ=.91, p<.01; ρ= .75, p<.01), and Dissatisfied behaviors (ρ= -.49, p<.05; ρ= -.87, p<.01) on the other hand. Moreover, Openness was significantly and negatively associated with Admonishing (ρ= -.51, p<.05), and positively to Helping/friendly (ρ= .70, p<.01) while Agreeableness was significantly and positively associated with Leadership (ρ= .50, p<.05), Understanding (ρ= .50, p<.05), admonishing (ρ= .71, p<.05), and negatively with strict behaviors (ρ= -.80, p<.01).

To determine the exact contribution of each exploratory variable to the response variable (the third question), stepwise regression analyses were conducted with educators' personality traits as predictor variables and their interpersonal behavior dimensions as the independent variables. Stepwise regression rather than sequential one was chosen since the researchers did not find firm theoretical bases to decide on the best regression configuration, hence letting the computer pick the best one based on purely statistical information. Moreover, the dimensions of Proximity and Influence rather that the eight scales of the QTI were selected as response (dependent) variables since the sample of the study was not big enough to maintain an adequate amount of power among thirteen correlated variables. Therefore, the number of response variables was reduced from the eight subscales to the two dimensions.

Table 4 shows the correlations between the explanatory variables (personality traits) and the response variables (interpersonal dimensions) as well as the correlations among the explanatory variables. As the table shows, there were moderate and high correlations between Influence and three explanatory variables (Neuroticism (ρ= .73, p<.01), Extraversion (ρ= -.68, p<.01), Agreeableness (ρ= .50, p<.05), and Conscientiousness (ρ= -.92, p<.01) with the highest being Conscientiousness[1]. There were also correlations between the second

[1] In correlation analysis, the following intervals should be used as the measure to determine the strength of the obtained correlations: 0.70-1.00 high; 0.69-0.30 moderate; 0.29-0.00 low (Buyukozturk, 2002).

exploratory variable (Proximity) and Neuroticism (ρ =.58, p<.05), Extraversion (ρ = -.64, p<.01), Agreeableness (ρ = -.748, p<.01), and Conscientiousness (ρ = -.743, p<.01), with the highest being between Proximity and Agreeableness.

Table 4. *Correlations between Variables*

Variables		Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Influence	ρ	.739**	-.686**	-.304	-.506*	-.922**
	Sig.	.001	.002	.236	.038	.000
Proximity	ρ	.587*	-.646**	-.078	-.748**	-.743**
	Sig.	.013	.005	.767	.001	.001
Neuroticism	ρ					
	Sig.					
Extraversion	ρ	-.922**				
	Sig.	.000				
Openness	ρ	-.710**	.659**			
	Sig.	.001	.004			
Agreeableness	ρ	-.256	.347	-.085		
	Sig.	.320	.172	.745		
Conscientiousness	ρ	-.759**	.728**	.382	.542*	
	Sig.	.000	.001	.130	.025	

**. Correlation is significant at the 0.01 level (2-tailed).

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

Before running a multiple regression, the most basic assumptions of normal distribution, homogeneity of variances, linearity, independent errors, and multicollinearity were checked. The assumptions of normality, homogeneity of variances, and linearity were assured graphically by examining Q-Q plots, scatterplots of standardized residuals, and scatterplot matrices, respectively. Moreover, tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern for all data set since the VIF values were not greater than 10, or the tolerance values were more than 0.1 (Table 5 and 6). The data also met the assumption of independent errors (Durbin-Watson value = 1.723), considering that Durbin-Watson values can be anywhere between zero and four, with a value close to two as the best value for meeting the assumption of independent errors.

Table 5. *Model Summary[c] (Big five Components and Influence Dimension)*

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
1	.860[a]	.740	.722	.70441	
2	.922[b]	.850	.828	.55390	1.722

a. Predictors: (Constant), Neuroticism

b. Predictors: (Constant), Neuroticism, Conscientiousness

c. Dependent Variable: Influence

Table 6. *Coefficients[a] (Big five Components and Influence Dimension)*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-3.667	.653		-5.612	.000		
	Neuroticism	.212	.032	.860	6.529	.000	1.0	1.0
2	(Constant)	7.126	3.408		2.091	.055		
	Neuroticism	.136	.035	.553	3.921	.002	.539	1.855
	Conscientiousness	.177	.055	.452	3.203	.006	.539	1.855

a. Dependent Variable: Influence

A multiple regression was conducted to see if educators' personality traits predicted their interpersonal behaviors. Using the stepwise method, it was found that the educators' Neuroticism explained a significant amount of the variance in Influence dimension of educators' interpersonal behavior (*F (1, 15) = 42.62, p < .05, R^2 = .74, R^2 Adjusted = .722*). The multiple correlation coefficient was .86, indicating approximately 74 % of the variance of Influence dimension could be accounted for by educators' Neuroticism. The analysis showed that Neuroticism did significantly predict the Influence dimension of educators' interpersonal behavior (*Beta = .860, t (16) = 6.529, p < .05*).

In a similar vein, a stepwise regression was employed to determine how educators' personality traits predicted the Proximity dimension of their interpersonal behavior (see Table 7 and 8).

Table 7. *Model Summary[e] (Big five Components and Proximity Dimension)*

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
1	.775[a]	.601	.574	1.10418	1.722

a. Predictors: (Constant), Agreeableness

b. Dependent Variable: Proximity

Table 8. *Coefficients[a] (Big five Components and Proximity Dimension)*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	37.032	6.962		5.319	.000		
	Agreeableness	.686	.144	.775	4.752	.000	1.00	1.00

a. Dependent Variable: Proximity

The results indicated that the educators' Agreeableness explained a significant amount of the variance in their Proximity dimension (*F (1, 15) = 22.58, p < .05, R^2 = .60, R2 Adjusted = .57*). The multiple correlation coefficient was .77, indicating approximately 60% of the variance of Proximity dimension could be accounted for by the educators' Agreeableness. The analysis showed that Agreeableness did significantly predict the Proximity dimension of the educators' interpersonal behavior (*Beta = .77, t (16) = -4.75, p < .05*).

Discussion and Conclusion

The purpose of the study was to determine the associations among educators' personality traits and their interpersonal behaviors. Moreover, it aimed at investigating if educators' personality traits contributed to their interpersonal behaviors in terms of Inlfuence and. Afifliation. First, correlational analyses were conducted to determine if there was a. significant relationship between any of the Big Five personality traits and interpersonal behavior dimensions. Second, stepwise multiple regression analyses were performed with the Big five traits as the independent variables, and Influence and Proximity dimensions as the dependent variables.

In regards to correlational findings, the researchers found both significant positive and negative correlations between the personality traits of Neuroticism, Extraversion, Agreeableness, and Conscientiousness. Openness, compared to the other four traits, was most weakly related to the educators' interpersonal behavior. Interestingly, the patterns of correlations in this regard did not differ between student teachers' perceptions and educators' self-perceptions of the educators' interpersonal behavior. The trait of Openness was just significantly correlated with self-perceptions of Admonishing and Helping/friendly while no correlation was found between this trait and the student teachers' perceptions of the eight interpersonal scales. On the other hand, except for Student responsibility with no significant

relationship with the personality traits, all other scales of interpersonal behavior, specifically understanding and Helping/friendly, were most strongly related to the given variables.

The results of the current study in this regard confirmed the theoretical assumption of the relationship between personality and interpersonal behavior proposed by Leary (1957) believing that the way humans communicate is indicative of their personality (Wubbels et al., 1993). Such findings support those parts of previous research findings by Fisher, Kent, and Fraser (2015) which indicated there are strong associations between teacher-student interpersonal behavior and teacher personality. However, in contrast to the given findings which indicated "a greater degree of relatedness between teacher personality and self-perception than between teacher personality and student perception" (p. 110), the findings of the current study suggest a slightly stronger relationship between educators' personality and students teachers' perceptions than between educators' personality and self-perception of interpersonal behavior.

The results of the regression analyses also indicated that educators' personality traits and their interpersonal behavior in terms of Influence and Proximity are significantly related. All personality traits, expect for Openness, were significantly correlated with the two dimensions of Influence and Proximity. In the current study, Openness, the tendency of the individual to be imaginative, sensitive, original in thinking, attentive to inner feelings, appreciative of art, intellectually curious, and sensitive to beauty (Costa & McCrae, 1992), was of medium level (M= 39). This can be the most probable reason for lack of correlation with these two interpersonal dimensions.

When the analyses were done for the Influence dimension, the strongest model for prediction included Neuroticism and Conscientiousness. In this model, Neuroticism emerged as the strongest, positive predictor of Influence dimension, accounting for 72% of the variance. When Conscientiousness was added, they both accounted for 82% of the variance. Since the participants scored at the low end of Neuroticism (M= 19.41), they were emotionally stable and even-tempered (John & Srivastava, 1999). On the other hand, Influence, which deals with the degree of teacher control in communication with students, entails stable and positive emotions. Moreover, the participants' high score on Conscientiousness (M= 52.76) which indicates their tendency to act dutifully, show self-discipline, and aim for achievement seems to be in line with the nature of Influence dimension.

Stepwise multiple regression analyses also indicated that Agreeableness emerged as the

sole, significant predictor of educator Proximity. No other personality dimensions when paired with Agreeableness significantly added to the model. This indicates Agreeableness is the best and strongest predictor and explains 57% of the variance in Proximity dimension of educators' interpersonal behavior. The participants scored 48.18 indicating that they tended to be sympathetic to others and have a desire to help them. When such characteristics are compared with Proximity, the degree of cooperativeness between teacher and students, such findings can be logically interpreted.

The findings of the study have some pedagogical implications for educators. First, they should recognize that personality traits do contribute significantly to the quality of teacher interpersonal behavior. Therefore, applicants for teacher job must be meticulously selected in terms of their personality traits in teacher training programs. Although it is believed that personality traits are presumed to be stable over time (Loehlin, McCrae, Costa, & John, 1998), there is growing evidence that personality can change through age (see Roberts, Walton, & Viechtbauer, 2006 for a review) and interventions (see Roberts, et al., 2017 for a review). Considering this, some intervention efforts by educators can be directed towards developing the optimum personality traits that are highly correlated with desired interpersonal behaviors.

This study was subject to a number of limitations, which can create new avenues for further research. The first limitation was a limited number of teacher educators as a group of participants. Since the educators' interpersonal behaviors were supposed to be evaluated by their student teachers, collecting data from a bigger sample was practically impossible. Future studies can investigate the relationship between the given variables with more teacher educators. The second limitation of the study concerns the employed regression model (stepwise). In stepwise regressions, the researcher lets the computer pick the regression configuration based on purely statistical information since the previous findings are not strong enough to help the researcher choose the best configurations. Further studies can be set up applying other models such as sequential (hierarchical) regression in which the explanatory variables are entered based on what the literature finds more appropriate.

The third limitation of the study deals with the dependent variable. In this study, the educators' interpersonal behaviors were categorized in terms of the two dimensions of Influence and Proximity rather that the eight subscales of DC, CD, CS, SC, SO, OS, OD, and DO. The two dimensions were preferred because they are less interrelated than the eight scales), and less subject to reliability and validity problems (Wei, Brok, & Zhou, 2009).

Moreover, by choosing the eight exploratory variables instead of two variables, a bigger sample was required. Therefore, future interested researchers are recommended that they carry out a study that investigates the correlation between educator personality traits and the eight interpersonal behavior subscales.

In conclusion, this study provides insight into how educators' personality traits are associated with their interpersonal behavior. The results from correlation and regression analyses revealed that personality traits accounted for a high degree of variance in educators' interpersonal behavior. Although it provided relevant new insights into the research ifelds of. personality and interpersonal relationships in education, the interrelation between various dimensions of these two variables seems to be among the unexplored areas of research that deserve more attention.

References

Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs, 47*(1), I-171. doi:10.1037/h0093360

Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review, 11*,150–166.

Barr, A. S. (1952). The measurement of teacher characteristics and prediction of teaching efficiency. *Review of Educational Research*, *22*(3), 169-174.

Barrick, M., & Mount, M. (2005). Yes, personality matters: Moving on to more important matters. *Human Performance, 18*, 359-372.

Bozionelos, N., (2004). The big five of personality and work involvement. *Journal of Managerial Psychology*, *1*(9), 69-81.

Buyukozturk, S. (2002). *Data analysis handbook to social sciences.* Ankara: Pegema.

Caralis, D., & Haslam, N. (2004). Relational tendencies associated with broad personality dimensions. *Psychology and Psychotherapy: Theory, Research and Practice, 77*(3), 397-402. doi:10.1348/1476083041839303

Cattell, R. B. (1943). The description of personality: Basic traits resolved into clusters. *Journal of Abnormal and Social Psychology, 38*, 476–506

Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. (1970). *The handbook for the sixteen personality Factor questionnaire*. Champaign, IL: Institute for Personality and Ability Testing, Inc.

Costa, P. T., & Mccrae, R. R. (1976). Age Differences in Personality Structure: A Cluster Analytic Approach. *Journal of Gerontology, 31*(5), 564-570.

Costa, P. T., & McCrae, R. R. (1985). *NEO personality inventory professional manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI) professional manual.* Odessa, FL: Psychological Assessment Resources

den Brok, P., Brekelmans, M., & Wubbels, T. (2004). Interpersonal teacher behavior and student outcomes. *School Effectiveness and School Improvement*, *15*(3/4), 407–442.

den Brok, P., Fisher, D., & Koul, R. (2005). The importance of teacher interpersonal behavior for secondary science students in Kashmir. *Journal of Classroom Interaction, 40*(2), 5-19.

den Brok, P., Fisher, D., & Scott, R. (2005). The importance of teacher interpersonal behavior for student attitudes in Brunei primary science classes. *International Journal of Science Education, 27*, 765–779.

Ferguson, P. D., & Fraser, B. J. (1998). Changes in learning environment during the transition from primary to secondary school. *Learning Environments Research, 1*(3), 369–383.

Fisher, D., Harry, K., & Fraser, B. (1998). The relationship between teacher personality and teacher-student interpersonal behavior. *School Psychology International, 19*(2), 99-119.

Fisher, D., Henderson, D., & Fraser, B. (1995). Interpersonal behavior in senior high school biology classes. *Research in Science Education, 25*, 125–133.

Fisher, D., Kent, H., & Fraser, B. (2015). Relationship between teacher-student interpersonal behavior and teacher personality. *School Psychology International*, *19*(2), 99-119.

Goh, S. C., & Fraser, B. J. (1998). Teacher interpersonal behavior, classroom environment and student outcomes in primary mathematics in Singapore. *Learning Environments Research, 1*, 199–229.

Hakimi, S., Hejazi, E., & Gholamali, M., L. (2011). The relationships between personality traits and students' academic achievement. *Procedia - Social and Behavioral Sciences*, 29, 836 – 845.

Hazrati-Viari, A., Rad, A. T., & Torabi, S. S. (2012). The effect of personality traits on academic performance: The mediating role of academic motivation. *Procedia-Social and Behavioral Sciences, 32*, 367-371.

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The "big five" inventory & versions 4a and 54*. Berkeley, CA: University of California, Institute of Personality, and Social Research.

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big five-trait taxonomy. *Handbook of Personality: Theory and Research, 3*, 114–158.

John, O., & Srivastava, S. (1999). The big-five trait taxonomy: History, measurement, and theoretical perspectives. In L. Pervin, & O.P. John (Eds.), *Handbook of personality: Theory and research* (2 ed., pp. 102-138). New York: Guilford Press.

Judge T. A., Heller D. & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87*(3), 530–541.

Kim, L. E., Jörg, V., Klassen, R. M. (2019). A meta-analysis of the effects of teacher personality on teacher effectiveness and burnout. *Educational Psychology Review, 31*, 163–195.

Larson-Hall, J. (2010). *A guide to doing statistics in second language research using SPSS*. New York, N. Y.: Routledge.

Leary, T. (1957). *An interpersonal diagnosis of personality*. New York: Ronald-Press Company.

Loehlin, J., McCrae, R., Costa, P., & John, O. (1998). Heritabilities of common and measure-specific components of the Big Five personality factors. *Journal of Research in Personality, 32*, 431– 453.

Maslowski, R. (2003). Klimaat in de klas. [Classroom climate]. *HSO*. B4200-1/28.

McCrae, R. R., & Costa, P. T. (1990). *Personality in adulthood*. New York: The Guilford Press.

McCrae, R. R., & Costa, P. T. (1993). Four ways five factors are basic. *Personality and Individual Differences, 13*, 653-665.

McCrae, R. R., & Costa, P. T. (1999). A five-factor theory of personality. In L. A. Pervin, & O.P. John (Eds.), *Handbook of personality: Theory and research* (2ed., pp. 139-153). New York: Guilford Press.

Mullins, L. J. (2005). *Management and organizational behavior* (7th ed.), Essex, England: Pearson Education Ltd.

Murray, E. (1972). Students' perceptions of self-actualizing and non-self-actualizing teachers. *Journal of Teacher Education, 23*, 383-387.

Myers, I. B., McCaulley, M. H., Quenk, N. L., & Hammer, A. L. (1998). *The MBTI manual: A guide to the development and use of the Myers-Briggs type indicator*. Palo Alto: Consulting Psychologists Press.

Nadeem, A., Mahmood, Z., & Saleem, S. (2018). Personality traits as predictors of interpersonal difficulties in university students in Pakistan. *Pakistan Journal of Social and Clinical Psychology*, 16(1), 3-9.

Navidinia, H., Zangooei, A., & Ghazanfari, M. (2015). Uncovering the relationship between EFL teachers' big five personality traits and their self-concept. *Journal of Applied Language Studies*, *7*(2), 176-204.

Passini, S., Molinari, L., & Speltini, G. (2015). A validation of the questionnaire on teacher interaction in Italian secondary school students: the effect of positive relations on motivation and academic achievement. *Social Psychology of Education, 18*, 547–559.

Pervin, L. A., Cervone, D., & John, O. P. (2005). *Personality: Theory and research* (9th ed.). Hoboken, NJ: John Wiley & Sons.

Piedmont, R., & Weinstein, H. (1994). Predicting supervisor ratings of job performance using the NEO Personality Inventory. *Journal of Psychology: Interdisciplinary and Applied*, *128*, 255–265.

Roberts, B. W., Luo, J., Briley, D. A., Chow, P. I., Su, R., & Hill, P. L. (2017). A systematic review of personality trait change through intervention. *Psychological Bulletin, 143*,117–141.

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin, 132*(1), 1-25. doi:10.1037/0033-2909.132.1.1

Tomšik, R. & Gati, V. (2018). Choosing teaching as a profession: Influence of big five personality traits on fallback career. *Problems of Education in the 21st Century, 76*(1), 100-108.

Tyler, F. T. (1960). Teacher personalities and teaching competencies. *The Social Review*, *64*(8), 429-449.

Van Petegem, K., Creemers, B.P.M., Rossel, Y., & Aelterman, A. (2005). Relationships between teacher characteristics, interpersonal teacher behavior and teacher wellbeing, *Journal of Classroom Interaction*, *40*(2), 34-43.

Waldrip, B. G., & Fisher, D. L. (1999, December). *Differences in country and metropolitan students' perceptions of teacher-student interactions and classroom learning*

environments. Paper presented at the annual meeting of the Australasian Association for Research in Education, Melbourne.

Wei, M., Brok, P. D., & Zhou, Y. (2009). Teacher interpersonal behavior and student achievement in English as a Foreign Language classrooms in China. *Learning Environments Research, 12*(3), 157-174. doi:10.1007/s10984-009-9059-6

Williams, M., & Burden, R. (1997). *Psychology for Language Teachers: A Social Constructivist Approach*. Cambridge: Cambridge University Press.

Wubbels, T., & Levy, J. (1991). A comparison of interpersonal behavior of Dutch and American teachers. *Interactional Journal of Intercultural Relations, 15*, 1-18.

Wubbels, T., & Levy, J. (Eds.). (1993). *Do you know what you look like: Interpersonal relationships in education.* London, England: Falmer Press.

Wubbels, T., Creton, H. A., & Hooymayers, H. P. (1985). *Discipline problems of beginning teachers: Interactional teacher behavior mapped out*. Paper presented at the annual meeting of the American Association Research.

Wubbels, T., Créton, H.A, & Hooymayers, H.P. (1987). A school-based teacher induction program. *European Journal of Teacher Education, 10*, 81-94

Wubbels, Th., Créton, H., Levy, J., & Hooymayers, H. (1993). The model for interpersonal teacher behavior. In Theo Wubbels & Jack Levy (Eds.), *Do you know what you look like?* London: Falmer Press, pp. 13–28.

Yu, T. M., & Zhu, Ch. (2011). Relationship between teachers' preferred teacher–student interpersonal behavior and intellectual styles. *Educational Psychology, 31*(3), 301–317.

Zarabian, F., Farajollahi, M., Yousefpour, Z., & Sajadiseresht, A. A. (2015). The relationship between teachers' personality types and female high school third graders' achievement motivation in Mashhad. *International Research Journal of Applied and Basic Sciences, 9*(6), 815-823.