Pre-Service Teachers:
Dispositional Traits, Emotional States, and Quality of Teacher-Student Interactions

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Introduction

Ensuring that American classrooms have teachers who can provide quality instruction and positive interactions with students is of national interest and concern. Such focus is evidenced by the *No Child Left Behind Act* mandate that every American classroom be supplied with a certified and content-trained "highly qualified" teacher (No Child Left Behind Act of 2001). This directive is born out of the assumption that teachers who have content knowledge and credentialed training are best suited to serve students. Teacher credentials, however, have shown little predictive value in identifying which teachers are most successful for student outcomes (Hanushek & Rivkin, 2004; Pianta & Allen, 2008). Given this, new ways of thinking about what influences teachers to be effective in their instructional interactions with students are needed.

Psychology research has found that individuals' personality traits, separate from their educational training, are useful in predicting attitudes, behaviors, performance, and outcomes in organizational settings (Ones, Dilchert, Viswesvaran, & Judge, 2007).

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Given the interactive nature of teaching, dispositional characteristics (i.e., traits that dispose a person towards certain behaviors, choices, and experiences) like assertiveness and openness or emotional states such as sadness, worry, and stress may play important roles in a teacher's ability to interact in meaningful, engaging, and effective ways with students. Preliminary work in the teaching field has found associations between teacher beliefs and attitudes and their effectiveness in their interactions with students (Howes, Burchinal, Pianta, Bryant, Early, Clifford, et al., 2008). Additionally, early work in teaching reading has identified teachers' attitudes as extremely influential on their effectiveness (Ruddell, 1999). Other work has found emotional states, particularly depression and stress, to be linked with teachers' performance in the classroom (Hamre & Pianta, 2004). These examples support the general acknowledgment in the teaching field of the importance of these "other" dispositional traits. The importance of dispositional traits is further evidenced by the National Council of Accreditation of Teacher Education (NCATE) identifying as one of its core accreditation standards attention to and measurement of "candidate professional dispositions" (NCATE, 2008). The notion of dispositions has not been well-defined, however, and not typically focused on in pre-service teacher training (Borko, Liston, & Whitcomb, 2007).

The present study aims to better understand the dispositional traits and emotional states of pre-service teachers and the association between these attributes and the effectiveness of their interactions with students. We examine two dispositional traits that hold particular promise: *personality* and *adult attachment style*. We also examine three emotional states: *depression*, *anxiety*, and *stress*. Additionally, the present study asks whether these qualities of pre-service teachers are similar to their same age peers, if they remain stable over time, and whether they predict pre-service teachers' interactions with students in their student-teaching experience. The results of this study have important implications for teacher education and for understanding the characteristics of those individuals who are entering the teaching profession and who may show early promise as effective teachers.

Background and Significance

Personality

Personality characteristics predispose an individual to interpret events in a particular way, which support or hinder adaptive and psychologically healthy behaviors and interactions (Kokkinos, 2007). An extensive line of research has revealed a "Big Five" structure of personality (Costa & McCrae, 1992). This five-factor model has been described as the most compelling conceptualization of personality to date (Teven, 2007). The five factors include neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Briefly, neuroticism is characterized by negative emotions, such as anxiety and low self-esteem. Extraversion is defined by being sociable and assertive. Those individuals high on openness

tend to be curious and imaginative. Persons with a high degree of agreeableness are sympathetic and easily moved. Finally, conscientiousness is characterized by a high degree of responsibility and determination. The most common instrument for assessing the five-factor model of personality is the NEO Personality Inventory (NEO-PI) and its abbreviated version, the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). The latter is used in this study.

The big five personality traits predict important job-related outcomes. For example, extraversion, conscientiousness, and openness arise as consistent predictors of job success and satisfaction, particularly in fields with a high degree of personal interaction (Henson, 2003). On the other hand, other personality traits have been linked with professional burnout. Neuroticism, in particular, is one of the strongest predictors of burnout and emotional exhaustion (Burke & Greenglass, 1996; Maslach, Schaufeli, & Leiter, 2001). In a study of teachers, Cano-Garcia and colleagues (2005) found that teacher burnout was linked to high degrees of neuroticism and introversion.

For teachers, personality characteristics can mediate the relationship between students' behaviors and the way teachers approach social interactions with students (Teven, 2007). In one of the few studies investigating personality and its relation to teaching, distinguished teachers were shown to differ from typical teachers, tending to be more optimistic, active, imaginative, and sensitive (Rushton, Morgan, & Richard, 2007). Studies such as this suggest that exceptional teachers may possess a distinct personality profile. Although studies of teachers' personality traits have been limited, researchers are increasingly recognizing the need to study these and other psychological traits of pre-service teachers, as they may be predictive of future success in the classroom (Thornton, Peltier, & Hill, 2005). Taken together, previous research pertaining to personality characteristics suggests that research in this domain is needed within the education community as such characteristics may help predict teacher quality and positive classroom experiences for students.

Adult Attachment

A second dispositional trait that may help to predict teachers' interactions is adult attachment style. Adult attachment style refers to the way in which an adult individual interacts with and responds to others' emotional needs. According to attachment theory, individuals with a secure adult attachment style are able to perceive and respond to a range of emotional states and are better able to serve as a secure base to children (Bowlby, 1969). On the other hand, those with an insecure attachment style may demonstrate worry or discomfort in responding to others, and avoid intimacy in relationships. Adult attachment style has been shown to predict both concurrent and future functioning in relationships (Hazan & Shaver, 1987).

Studies of teachers' adult attachment style, though rare, have yielded promising results. In one study, Chinese pre-service teachers' adult attachment style was related to teachers' attribution when presented with hypothetical classroom situations (Man

& Hamid, 1998). In this study, pre-service teachers with secure attachment styles were better able to evaluate both positive and negative aspects of the classroom and tended to be more objective in attributing causes for classroom failure. Moreover, those teachers without secure attachment styles had a tendency to diminish teacher failure and did not hold teachers as responsible for classroom failure. In another study of adult attachment style, teachers who viewed their relationship with their parents as secure were more likely to report forming secure relationships with students (Kesner, 2000). Taken together, these studies suggest that teachers' adult attachment style may provide insight into teachers' abilities to read and interpret students' needs, enabling them to have more sensitive and responsive interactions with students in the classroom and, thus, of interest while they are still developing during their pre-service training.

Emotional States

Unlike personality traits and attachment style which are thought to be more stable and resistant to change, states are temporary feelings that depend on one's environment at a particular time. Across studies of occupational performance, depression and anxiety have been shown to impair work performance and safety (Haslam, Atkinson, & Brown, 2005). Moreover, interventions that reduce levels of anxiety and depression improve work performance in human service settings (Rose, Jones, & Fletcher, 1998). A sizable literature also exists which demonstrates that teacher stress has negative consequences and is a leading cause of teacher burnout (see Guglielmi & Tatrow, 1998, for a review). Like dispositions, however, the field of education has not engaged in systematic studies that assess an individual's emotional states and links them to teachers' interactions with students. Given the connection between job performance and emotional states in other fields, studying and understanding their prevalence during teacher training will provide new information to the field.

Stability of Traits and States

There is an ongoing debate among personality psychologists about the stability of personality characteristics. Although traits, by definition, must remain fairly constant for short periods (i.e., weeks or months) and within different contexts, it is not clear whether they must do so over longer periods of time (Quackenbush, 2001). Indeed, research on personality characteristics has shown that dispositional traits may change significantly during the college-age years. For example, one study found that openness and conscientiousness increased, but extraversion decreased, from age 18 to 21 (McCrae et al., 2005). Similarly, an individual's adult attachment style may also change and become more secure during early adulthood (Zhang & Labouvie-Vief, 2004). Thus, pre-service teachers' dispositional traits may look very different when they leave a traditional five-year teacher education program than when they enter. If this is the case, teacher educators may need to adjust their support for pre-service teachers during this developmental shift. The present study, then, additionally seeks

to determine whether dispositions and emotions remain stable across pre-service teachers' participation in a traditional teacher education program.

Effective Teacher-Student Interactions

Previous research has shown that a significant proportion of variance in elementary and secondary students' learning occurs at the classroom level (Hanushek, 2002; Nye, Kostanopoulous, & Hedges, 2004) and that changes in students' academic trajectories across years are primarily due to experiences in specific classrooms with specific teachers (Sanders & Rivers, 1996). Research within classrooms indicates that the interactions teachers share with students in the classroom directly contribute to students' success (Hamre & Pianta, 2005). Emphasis on the quality of interactions among teachers, children, and materials reflects the widely accepted view that the effects of education settings are derived from these exchanges (Howes & Ritchie, 2002; Pianta, 1999). For this study of effective teacher-student interactions, the Classroom Assessment Scoring System (CLASS; Pianta, LaParo, & Hamre, 2004) was used. The CLASS is a reliable and validated observational measure that assesses social/emotional, organizational, and instructional teacher-student interactions. Higher quality teacher-student interactions as measured by the CLASS predict growth in pre-k children's achievement (Howes, et al., 2008; Mashburn, Pianta, Hamre, Downer, Barbarin, & Bryant et al., 2007), first-graders' achievement gains (Hamre & Pianta 2005), and social adjustment in early childhood and elementary school (Downer & Pianta, 2006).

In examining the quality of student-teacher interactions, Pianta et al. (2005) found that teachers' beliefs about children were related to observed teaching quality, with teachers who held more child-centered beliefs providing higher quality learning opportunities in the classroom. Additionally, emotional factors such as teachers' depressive symptoms have also been shown to be predictive of interactions between children and child-care providers (Hamre & Pianta, 2004). For example, caregivers who experience depression have been found to exhibit caregiver-child interactions characterized by harshness and withdrawal (Hamre & Pianta, 2004). Taken together, these findings suggest that core elements of a teacher's disposition and emotional state are related to teacher effectiveness in the classroom as measured by the quality of their interactions with students. Given that teacher preparation programs provide a critical professional development window influencing practice, understanding if these elements are related for pre-service teachers is vital.

In this study, we address three primary research questions:

(1) What are the dispositional traits and emotional states of pre-service teachers when they enter a traditional teacher education program as compared to same-age norms?

(2) How stable are dispositional traits and emotional states of pre-service teachers from entry to exit in a traditional five-year teacher education program?

(3) Do pre-service teachers' dispositional traits and/or emotional states predict the quality of their student teaching experience?

Methods

This study uses data from a larger study of teacher preparation, which was funded as part of the Teachers for a New Era project. Within a teacher preparation program, funds supported the development and enhancement of a participant pool, allowing systematic data to be gathered on pre-service teachers to inform the field and the program. More specifically, individuals within the teacher education program complete a set of validated measures throughout their experience. This information is combined with other measures like field placement observations to provide in-depth knowledge about pre-service teachers, their experiences, and their performance. Data in this study are drawn from two cohort years. CLASS observations were taken only in the final year of this study, so the sample used to answer the third research question about classroom quality is a subgroup of the larger study.

Participants

All students enrolled in a mid-Atlantic university's teacher preparation program were invited to participate and over 90% consented. Participants were 67 pre-service teachers enrolled in a five-year teacher education program. The final sample was 92% female. Eighty-one percent were Caucasian and their average age was 23 years (SD=.62) at exit from the program.

Setting

All students in the present study were involved in a five-year combined bachelor/Masters in Teaching (BA/MT) program. Students can choose what their undergraduate major is, most identifying either a content area (mathematics, literacy, etc.) or psychology as their undergraduate major. The core of education classes, which begin typically in the third year of the program, focuses on instructional techniques, classroom management, methods for student assessment, and content specific pedagogy. These courses provide pre-service teachers with both theoretical and practical knowledge designed to guide their professional careers as K-12 teachers. Pre-service teachers also begin observing in local schools in their third year of training and focus more specifically on instruction and classroom practice as they progress further in the program. The fifth and final year in the BA/MT program consists of seminars on contemporary educational issues and intensive teaching field experiences in which pre-service teachers take an active instructional role and are expected to synthesize and apply their knowledge and skills.

Data were collected at three time points: (1) when individuals entered the teacher preparation program during their third year of school, (2) during their

student teaching placement at one site in their specialty area during the fall of their fifth year, and finally, (3) in the spring of their fifth year of their teacher preparation program. Intake survey data were collected during the fall of 2003 and fall of 2004. The second cohort of pre-service teachers were observed using the Classroom Assessment Scoring System (CLASS) during their student teaching placement in the fall of 2007. Last, exit survey data was collected in the spring of 2007 and spring of 2008, when students graduated. The intake and exit surveys included a demographic questionnaire, along with three other measures: the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992), the Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994), and the Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995).

Measures

Demographic questionnaire. This questionnaire assessed demographic characteristics including age, gender, and ethnicity.

NEO Five-Factor Inventory (NEO-FFI). This measure assessed personality based on the five-factor model (Costa & McCrae, 1992) and has been linked to job success and satisfaction (Henson, 2003). The 60-item version of the NEO Personality Inventory (NEO-PI-R), the NEO-FFI, assesses: neuroticism (N: "I often feel inferior to others"), extroversion (E: "I really enjoy talking to people"), openness (O: "I have a lot of intellectual curiosity"), agreeableness (A: "I generally try to be thoughtful and considerate"), and conscientiousness (C: "I strive for excellence in everything I do"). Pre-service teachers responded on a 5-point scale ranging from *strongly disagree* to *strongly agree*. Alphas on the NEO-FFI dimensions ranged from .78 to .87. Means are reported in Table 3.

Relationship Scales Questionnaire (RSQ). This measure includes 30 statements on which participants rated the extent to which each statement best describes them. Responses were based on a 5-point scale: 1 - Not at all like me; 3 – Somewhat like me; and 5 – Very much like me. The original authors of the measure (Griffin & Bartholomew, 1994) state that this questionnaire provides scores on four separate subscales: Secure, Fearful, Preoccupied, and Dismissing. However, previous factor analytic research found little evidence for the four factor subscales (Siegert, Ward, & Hudson, 1995). Our own analysis confirmed this finding. Thus, a single factor comprised of 17 items concerned with security versus insecurity was used. Items on this scale included, "I find it easy to get emotionally close to others," and "I know that others will be there when I need them." Crohnbach's alpha for the scale was .88. Some items were reversed coded so that a higher score suggested greater security in relationships.

Depression Anxiety Stress Scales (DASS). The DASS is a 21 item self-report measure that assesses the emotional states of depression, anxiety, and stress. Each

of the three DASS scales contains 7 items. Respondents rated the level to which statements applied to them over the past week. Responses ranged from 0 – Did not apply to me at all to 3 – Applied to me most of the time. Items included, "I felt that I had nothing to look forward to" (depression), "I was worried about situations in which I might panic and make a fool of myself" (anxiety), and "I found it hard to wind down" (stress). Previous studies have shown the DASS to have excellent reliability as well as convergent and discriminant validity (Crawford & Henry, 2003). Cronbach's alphas for the three DASS emotional scales ranged from .74 to .85. Means are reported in Table 4.

Observed classroom quality: Classroom Assessment Scoring System (CLASS; Pianta, Hamre, & LaParo, 2006; Pianta, Hamre, Hayes, Mintz, & LaParo, 2006). The CLASS is an observation instrument designed to measure teacher quality by rating teacher practices and classroom interactions. It has both an elementary and secondary version. The CLASS has been shown to predict students' achievement gains (Hamre & Pianta, 2005) and social adjustment (Downer & Pianta, 2006). Both levels of the CLASS (elementary and secondary) were used to observe pre-service teachers during their semester of student teaching. The elementary level includes ratings on the following dimensions: Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, Behavior Management, Productivity, Instructional Learning Formats, Concept Development, Quality of Feedback, Language Modeling, and Student Engagement. The dimensions of the secondary version of the CLASS include: Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Adolescent Perspectives, Behavior Management, Productivity, Instructional Learning Formats, Procedures & Skills, Content Understanding, Analysis & Problem Solving, Quality of Feedback, and Student Engagement.

For each version, all dimensions are rated from one to seven with a one or two indicating the classroom is low on that dimension, three, four, or five indicating that the classroom is in the mid-range, and a six or seven indicating the classroom is high on that dimension. The dimensions were used to form three domain scores: *Emotional Support*, *Instructional Support*, and *Classroom Organization*. The three domain scores served as the dependent variables in analyses. Cronbach's alphas ranged from .81 to .83.

Prior to data collection, supervisors were trained over two days with a standard protocol that involved watching, coding, and discussing teaching video segments. They then watched and coded five elementary or five secondary teaching segments (depending on the teaching level of the pre-service teachers they were to observe) without discussion for reliability. Data collectors were considered reliable when they completed a video-based reliability test in which eighty percent of their codes were within one scale point of the "gold standard" response. The "gold standard" scores were those developed by groups of "master coders" who had extensive knowledge and experience with the CLASS instrument.

Observations were conducted during a two-week window in the fall of 2007, near the end of the pre-service teachers' field placement. Supervisors conducted observations in cycles. Each observation cycle consisted of a 20-minute period in which the observer watched classroom interactions and took notes, followed by a 10-minute period for recording codes. For this study, observers completed two cycles of observations for each pre-service teacher; scores for the two cycles were averaged to obtain overall CLASS domain scores. Only those teachers in the second cohort were observed using the CLASS. Thus, the third research questions uses a smaller sample (N=41) than the other two questions explored here.

Results

Descriptives

Correlations between study variables at entry into, and exit out of, the teacher education program are shown in Tables 1 and 2 respectively. Correlations between many of the pre-service teachers' dispositional traits and emotional states were found to be both significant and in the expected direction. At both entry and exit, depression is positively correlated with neuroticism and negatively correlated with extraversion and adult attachment. Similarly, anxiety was positively correlated with neuroticism at entry and exit, as well as negatively correlated with adult attachment at both time points. Stress was also positively correlated with neuroticism at entry and exit and negatively correlated with adult attachment.

Personality Traits

To determine whether personality traits of pre-service teachers were different from same-age norms, independent sample t-tests were run. The study sample was compared to the normative data reported in Costa and McCrae (1992) for 389

Table 1.
Correlations for Variables at Intake

Variables	1	2	3	4	5	6	7	8	9
1. Neuroticism	--								
2. Extraversion	-.48**	--							
3. Openness	-.06	.21	--						
4. Agreeableness	-.41**	.43**	.19	--					
5. Conscientiousness	-.16	-.06	-.21	.36**	--				
6. Adult Attachment	-.62**	.44**	.15	.35**	.10	--			
7. Depression	.47**	-.39**	.04	-.34**	-.40**	-.46**	--		
8. Anxiety	.51**	-.27*	.26*	-.19	-.21	-.55**	.50**	--	
9. Stress	.55**	-.23	.31*	-.31*	-.24	-.41**	.50**	.68**	--

*p < .05, **p < .01

17-20 year olds. Results showed that the pre-service teachers differed on nearly all five personality dimensions from the normative group. The one exception was the openness score at intake, which was not statistically different from the norm group. Differences from the normative sample were in the same direction at both intake and exit. Means and standard deviations for the study sample and the normed sample are shown in Table 3. Pre-service teachers in this study had lower neuroti-

Table 2.
Correlations for Variables at Exit

Variables	1	2	3	4	5	6	7	8	9
1. Neuroticism	--								
2. Extraversion	-.43**	--							
3. Openness	-.08	.23	--						
4. Agreeableness	-.18	.49**	.32**	--					
5. Conscientiousness	-.02	-.03	-.35**	.07	--				
6. Adult Attachment	-.58**	.43**	-.01	.23	-.12	--			
7. Depression	.62**	-.37**	.03	-.04	-.08	-.45**	--		
8. Anxiety	.43**	-.12	.23	-.01	-.30*	-.35**	.35**	--	
9. Stress	.61**	-.08	-.03	-.13	.12	-.42**	.51**	.39**	--

$*p < .05, **p < .01$

Table 3.
Comparison of NEO-FFI Scores for Study Sample and College-Age Norms

	Study sample of Pre-service teachers		Norm sample of 17-20 year olds	
	Mean	SD	Mean	SD
Neuroticism			24.56	7.87
Intake**	21.16	8.15		
Exit**	20.30	7.99		
Extraversion			30.49	5.84
Intake**	33.25	5.80		
Exit*	32.12	5.75		
Openness			27.82	5.85
Intake	29.47	6.49		
Exit**	30.09	5.97		
Agreeableness			30.14	5.40
Intake**	36.91	4.79		
Exit**	36.85	3.82		
Conscientiousness			30.71	6.79
Intake**	34.04	5.93		
Exit**	34.95	6.48		

$*p < .05, **p < .01$

cism scores at both intake ($t(454)$=-3.17, $p<.01$) and exit ($t(454)$=-4.04, $p<.001$). Pre-service teachers also had higher scores on the extraversion scale at both intake ($t(454)$=3.59, $p<.001$) and exit ($t(454)$=2.14, $p<.05$). Scores were higher on openness to experience only at exit ($t(454)$=2.88, $p<.01$); at intake, the difference between sample scores and norms just missed statistical significance ($t(454)$=1.95, $p=.05$). Pre-service teachers reported being more agreeable at intake and exit ($t(454)$=10.48, $p<.001$; $t(454)$=12.40, $p<.001$, respectively); and more conscientious at entry and exit ($t(454)$=4.15, $p<.001$; $t(454)$=4.19, $p<.001$, respectively).

Means for the attachment measure show that pre-service teachers scored slightly above the midpoint in their ratings on the five point scale (intake mean=3.72, SD=.66; exit mean=3.85, SD=.63). No normed data is available for the adult attachment measure.

Emotional States

To determine whether pre-service teachers had different scores than their same-age peers, t-tests were run comparing the study sample to the normative sample reported in Lovibond and Lovibond (1995). The norms they report come from individuals 20 to 29 years old. Their normed sample for the depression and anxiety scales included 729 individuals; for the stress scale, the norms are derived from 376 individuals. Means and standard deviations for the study sample and normative data are shown in Table 4. Overall, pre-service teachers in this study reported less depression, anxiety, and stress than the normed sample. However, differences varied by emotion and time of survey. More specifically, the current sample of pre-service teachers reported lower depression only at intake ($t(794)$=-2.07, $p<.05$); scores of depression were not lower than the normed sample at exit. Reports of anxiety were lower at exit ($t(794)$=-2.83, $p<.001$), but intake scores did were not statistically different from norms. Self-

Table 4.

Comparison of DASS Scores for Study Sample and Normative Sample

	Study sample of Pre-service teachers		Norm sample of 20-29 year olds	
	Mean	SD	Mean	SD
Depression			6.35	6.85
Intake*	4.60	6.59		
Exit	5.02	6.45		
Anxiety			4.77	4.79
Intake	3.71	4.75		
Exit*	3.19	4.34		
Stress			11.19	8.25
Intake**	8.36	6.43		
Exit**	7.65	6.13		

*p < .05, **p < .01

rated stress was lower than norms both at intake (t(441)=-3.17, p<.01) and exit (t(441)=-4.11, p<.001).

Stability of Traits and States

To determine whether traits and states remained stable across time in a teacher education program, paired sample t-tests were carried out to compare scores at program entry with those at program exit. Results are presented in Table 5. T-test comparisons revealed that extraversion scores were lower at exit than at entry (t(66)=2.09, p<.05). No other personality trait or emotional state was statistically different at exit when compared to scores at entry.

Teacher-Student Interactions

Hierarchical regressions were run in order to determine whether personality traits and/or emotional states predicted pre-service teachers' observed quality in their student teaching experience. Six regressions were conducted for each of the three CLASS dimensions (i.e., emotional support, instructional support, classroom organization), three for intake data and three for exit data. In the first regression, intake "big five" personality traits were entered as a block. In the second regression, intake adult attachment was added to the model. In the third regression, intake emotional states were added to determine whether they would predict CLASS scores. The last three regression models were the same as the first three, except that exit survey data were used instead of intake data. Results show that at intake, extraversion (β=-2.10, p<.05) and depression (β=-2.28, p<.05) were predictive of lower scores on the Instructional Support domain of the CLASS. No other CLASS domain had significant predictors. Full regression results are presented in Table 6.

Table 5.
T-values to Determine Statistical Difference between Intake and Exit Survey Scores

Variable	t-value (df = 66)	Statistically different?
Neuroticism	1.08	no
Extraversion	2.09*	yes
Opennness	-1.10	no
Agreeableness	.11	no
Conscientiousness	-1.42	no
Adult Attachment	-1.70	no
Depression	-.62	no
Anxiety	.83	no
Stress	.82	no

*p < .05, **p < .01

Summary of Findings

The present study investigated the dispositional traits and emotional states of pre-service teachers, their stability in this population, and the association between these attributes and the quality of pre-service teachers' interactions with students. The study has three important findings. First, pre-service teachers in this sample generally differ in their dispositions and emotions from their same-age peers. Second, other than extraversion, dispositions and emotions appear to remain stable during time in a teacher education program. Third, pre-service teachers' level of extraversion and depression, assessed when they begin their teacher education, is predictive of observed instruction in the classroom.

Discussion

Pre-Service Teacher Dispositional Traits and Emotional States

In this study, pre-service teachers' personality dimensions were less neurotic, more extraverted, more open, more agreeable, and more conscientious than their peers. In regard to pre-service teachers' personality characteristics, all of their "Big Five" personality dimensions were also in the direction likely to be beneficial for individuals entering into the teaching profession. Teaching requires high levels of social interaction, the ability to be sensitive and responsive to others, flexibility, and independence and determination (Sikula, Buttery, & Guyton, 1996). All of these behaviors are more likely in individuals with higher levels of extraversion, openness, agreeableness, and conscientiousness.

Table 6.
Summary of Hierarchical Regression Analysis
for Intake Variable Predicting Instructional Support

	Model 1			Model 2			Model 3		
Variable	B	SE B	β	B	SE B	β	B	SE B	β
Neuroticism	-.02	.02	-.14	-.01	.02	-.07	.01	.02	.56
Extraversion	-.05	.02	-.31	-.05	.03	-.33	-.06	.03	-2.10*
Opennness	-.03	.03	-.20	-.03	.03	-.22	-.02	.03	-.58
Agreeableness	.02	.04	.13	.02	.04	.11	.02	.03	.72
Conscientiousness	.02	.03	.02	.00	.03	.00	-.03	.03	-.85
Adult Attachment				.23	.29	.17	-.05	.28	-.19
Depression							-.07	.03	-2.28*
Anxiety							.03	.05	.53
Stress							-.05	.04	-1.20
R^2		.12			.13			.40	
F for change in R2		.92			.61			4.49**	

*p < .05, **p < .01

Additionally, pre-service teachers in this sample had lower levels of neuroticism than national norms, indicating that these pre-service teachers were less self-conscious and less likely to experience negative feelings such as anger or vulnerability than others their same age. Teachers with low levels of neuroticism also tend to be less reactive and less impaired by the stressful challenges of teaching (Innes & Kitto, 1989).

In regard to emotions, pre-service teachers in this sample reported lower levels of anxiety, depression, and stress compared to peers their age. High negative emotions are predictive of diminished professional work performance (e.g., Dunham, 1992) and poorer interactions between children and teachers (Hamre & Pianta, 2004). Moreover, teaching is one of the most stressful professions (Kyriacou, 1998); teacher stress is related to burnout (Maslach & Jackson, 1986) and negative teacher reactivity toward students (Johnson, 2000). Given these links between negative emotions and poor work outcomes, it is an encouraging finding that individuals entering the profession report low levels of these emotions.

Stability of States and Traits

In examining stability of personality, attachment traits, and emotional states, results showed that only one dispositional trait—extraversion—changed significantly during individuals' time in the teacher education program. This finding is consistent with those that have found extraversion decreased from age 18 to 21 (McCrae et al., 2005). This change may reflect the important adjustments and maturational development of young adults. As individuals take on added responsibility, begin to have early experiences in the classroom, and become more secure in their identity, their need for a high degree of social interaction may wane. Of additional interest here is the stability, or lack of change, in pre-service teachers remaining traits and states. This finding indicates that, while many things may change during a college experience, the personalities, attachment, and emotions with which students begin a program remain fairly stable. This study indicates pre-service teachers will not likely "grow out of it" or become different in their general pattern of interactions as a consequence of teacher preparation.

Link to Observed Teacher-Student Interactions

Finally, findings also indicate pre-service teachers' extraversion and depression levels were related to instructional support interactions in their student teaching experience. Interestingly, these results only held at entry into the teaching education program. In other words, pre-service teachers who reported high levels of extraversion and/or depression when they began a teacher education program were more likely to show lower quality instruction years later during their student teaching experience.

Contrary to what one might initially think, higher self-reported levels of extraversion were related to lower quality instructional interactions with students. It is important to note that these self-assessments were completed by pre-service teachers

at the beginning of their teacher preparation. One explanation may be that individuals who initially saw themselves as highly sociable when they entered their training program believed that their personality would sustain them in the classroom and they exerted less effort in their training. Alternatively, these individuals may have been highly comfortable in social interactions with peers, but have less of an ability to pick up on the social needs of students and respond to them appropriately.

Additionally, given that depression has been linked to harshness and withdrawal on the part of caretakers (Hamre & Pianta, 2004), the constancy of depressive symptoms during teacher training and the association of depression with the quality of pre-service teachers' interactions with students is cause for concern. This finding suggests teacher educators should pay attention to possible signs of depression and consider intervention strategies that target individuals who seem to be experiencing this negative mood state.

The other personality dimensions, adult attachment style, and emotions were not predictive of pre-service teachers' observed interactions with students in their student teaching. One explanation may be that the instructional interactions extend beyond most personality measures and that dispositions cannot fully account for pre-service teachers' practice. Alternatively, teacher education programs may provide enough support and training to individuals during their student teaching so that any influence their personalities characteristics may have on their behaviors in the classroom is masked by their learned pedagogical skills. Consequently, the effects of dispositional characteristics of pre-service teachers may have been masked by the professional preparation and support they were receiving at the time.

Limitations

Several limitations of this study deserve notice. First, pre-service teachers' dispositions and emotions were measured solely from self-report data. It is possible that these individuals lacked insight into their feelings and behaviors or did not respond in a forthright manner on these surveys even though they were assured their responses would remain confidential. Second, the norming data that were available to compare to the study participants was not entirely matched for age and education level. Future studies could benefit from a better matched comparison group of similar aged college students who chose not to become teachers. Third, observations in this study were not conducted by uninterested observers; teaching supervisors were familiar with the candidates they were observing. However, it is important to note that they were stringently trained to reliability on use of the CLASS instrument and had no incentive to overinflate the observational scores of their teachers.

Another limitation involved the measurement of dispositions in this study. Dispositions have been regarded as an important component of teacher training. NCATE, which accredits approximately half of the country's teacher preparation institutions, has as one of its standards for accreditation, "candidate knowledge, skills, and professional dispositions" (NCATE, 2008). However, there is a lack of

consensus in teacher education on what dispositions are, how they should be measured, and which ones should be required of pre-service teachers (for a review, see Borko, Liston, & Whitcomb, 2007). In a critique of NCATE standards, Johnson and colleagues (2005) state, "no satisfactory or useful definition [of dispositions] has been given (p. 194)." In spite of this lack of agreement surrounding dispositions, this study sought to examine two particular dispositions: *personality* and *adult attachment style*. These dispositional characteristics were chosen because—based on the extant literature—they appeared to hold promise in predicting pre-service teachers' interactions with their students. However, it should be noted that these dispositions may not be the most important characteristics of pre-service teachers. Nor are these dispositions exhaustive; teachers possess other dispositions (e.g., emotional capacity, relationship style, etc.), which may be important for their interactions with students.

Future Research

This study is one of the first attempts in the field to investigate individual teacher characteristics in depth as a way to more fully understand who is going into teaching, and how these characteristics may relate to effectiveness in the classroom. Given the findings here that pre-service teachers may present a unique profile of personality and emotional characteristics, future studies should extend the examination of such characteristics of those who plan to enter the teaching profession, or are in the field, to understand the full implications of these differences. This study examined teachers in their initial teaching experience; future studies could examine whether teacher characteristics have effects that are not immediately apparent but may impact teachers' classroom practice once they become more experienced in the field and are farther removed from their training. Although this study examined interactions between pre-service teachers and students, which have shown to be important for student learning, further empirical evidence is needed to show a link between teacher characteristics and student learning gains. Additionally, given the growing number of non-traditional routes to teaching, it is important to determine whether there are dispositional or emotional differences between individuals enrolled in education schools and those who select alternative teaching programs such as Teach For America. Finally, given the link between depression and poor teacher-student interactions found here, interventions designed to support individuals who may show low mood or depressive symptoms may be important for those entering the field.

Summary

The findings of this study offer a new understanding of the importance of gauging pre-service teachers' personalities and emotions. Overall, pre-service teachers in this study reported positive personality traits and emotions. This apparent self-selection of emotionally healthy individuals is promising for the profession. Given that individuals in teacher education programs may have different

personalities and emotional states than their same-age peers, teacher educators should be attuned to the unique qualities of the individuals they prepare for the classroom. Additionally, such results offer a new call for strengthening support for individuals with negative moods in order to set the stage for higher quality interactions with students in the classroom.

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