

Potential predictors of student teaching performance: Considering emotional intelligence

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Efforts to increase teacher quality have focused on increasing both the admission and graduation standards required for students entering the profession. This study examined the relationship between common standards, such as college GPA, ACT scores, and Praxis exam scores, with student teacher performance as measured by an assessment rubric based on INTASC standards. Additionally, this study examined a relatively new measure of emotional intelligence ability using the Mayor-Salovey-Caruso Emotional Intelligence Test. Study participants were 74 teaching candidates completing their student teaching at a large, private university. GPA and Praxis scores correlated significantly and positively with final student teaching performance scores. Multiple regression analysis found GPA and Praxis scores to predict 16-percent of the variance in student teaching performance. Traditional quality indicators, including GPA, ACT scores, and Praxis exam scores were significantly and positively correlated with one another, however, no statistical correlation between these variables and emotional intelligence were found. No statistically significant relationship was found between total emotional intelligence and final student teacher performance scores. This study offers limited support for the continued use of GPA and teacher tests as predictors of future student teaching performance. Additionally, this study supports claims that emotional intelligence is a distinct form of intelligence not related to traditional intellectual intelligence. The findings of this investigation do not, however, support emotional intelligence as a predictor of teaching performance among secondary student teachers.

Introduction

In 1983, *A Nation at Risk: The Imperative for Education Reform* reported that American teacher education programs were unable to attract academically able students to the teaching profession. The report echoed the oft-cited quotation, “Those who can, do. Those who can’t, teach.” The nearly 30 years following this report have seen a multitude of new and heightened standards regarding teacher quality. Great efforts have been made to ensure the intellectual competence of teachers in hopes of increasing student learning. Zumwalt and Craig (2005) note that, “...policy makers, politicians and government officials, leaders of the business and philanthropic communities, and educators at all levels have worked to raise standards for prospective teachers and upgrade teacher education programs” (p. 158). Many of these efforts have centered on the intellectual ability of those wanting to teach. For example, raising minimum GPA requirements for acceptance into teacher education programs, along with increasing the acceptable GPA needed to qualify for student teaching and graduation have been used to eliminate teacher candidates with questionable academic performance. Likewise, using college entrance exam scores (viz., SAT, ACT) is a frequent method for determining a candidate’s academic ability.

These reform efforts focus on intellectual and academic indicators of teacher education program applicants prior to their acceptance into schools of education, as well as during their preparation programs. It is anticipated that these increased standards for program admission will help make the teaching profession less of a “dumping ground for low achievers” (Zumwalt & Craig, 2005, p. 160). More recently, teacher tests, such as the Praxis series of exams have been greatly emphasised and utilised in determining intellectual competence, particularly the subject matter and pedagogical knowledge of those entering the classroom (Zumwalt & Craig, 2005). Each of these efforts is ultimately aimed at increasing the quality profile of teacher candidates in hopes of increased student achievement.

In the United States, teacher preparation accrediting organisations such as the National Council for Accreditation of Teacher Education (NCATE) have increased standards and accountability for teacher education programs (NCATE, 2006) in an attempt to improve teacher quality. Relevant to a discussion of evaluating teacher candidates, NCATE’s first standard is focused largely on teaching candidates’ knowledge, skills, and disposition (NCATE, 2006). Teacher candidate skills desired by NCATE include the ability to maintain a professional disposition and accurately assess and analyse student learning (NCATE, 2006). NCATE’s inclusion of teacher dispositions, to include values such as caring, fairness, honesty, responsibility, and social justice, together with professional commitment and ethics has drawn some criticism (Diez, 2007; Hess, 2006; Murray, 2007). While few argue the need for the moral and ethical development of teachers, NCATE’s proposed teacher dispositions are difficult to define and nearly impossible to measure (Borko, Liston, & Whitcomb, 2007; Murray, 2007). NCATE’s efforts, while criticised, are a notable effort to increase the quality profile of teacher candidates.

Other organisations, such as the Interstate New Teacher Assessment and Support Consortium (INTASC, 1992), also provide assistance to states and teacher education programs in their evaluation efforts. INTASC provides evaluation rubrics designed to be consistent with the recommendations of both teacher education researchers (i.e., Fenstermacher & Richardson, 2005) as well as NCATE standards, and which can be modified to meet individual state and institutional needs. INTASC has created ten standards for assessment, which it believes, reflect the knowledge, skills, and disposition that beginning teachers must possess. These standards include:

- **Content Pedagogy.** The teacher understands the central concepts, tools of inquiry, and structures of the discipline he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.
- **Student Development.** The teacher understands how children learn and develop, and can provide learning opportunities that support a child’s intellectual, social, and personal development.
- **Diverse Learners.** The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

- **Multiple Instruction Strategies.** The teacher understands and uses a variety of instructional strategies to encourage student development of critical thinking, problem solving, and performance skills.
- **Motivation and Management.** The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
- **Communication and Technology.** The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
- **Planning.** The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
- **Assessment.** The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.
- **Reflective Practice: Professional Growth.** The teacher is a reflective practitioner who continually evaluates the effects of his or her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
- **School and Community Involvement.** The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being. (INTASC, 1992, pp. 14-34)

Although the use of evaluation rubrics based on INTASC standards by no means provides a cure-all for the difficult and complex challenge of assessing the competency and performance of student teachers, they are generally accepted by schools of education.

While increasing academic and intellectual standards for those desiring to enter teacher education programs may certainly be warranted, there are undoubtedly other qualities that may predict future teacher effectiveness. As Ayers (1993) notes, "Teaching is more than transmitting skills; it is a living act, and involves preference and value, obligation and choice, trust and care, commitment and justification" (p. 20). Those who have taught are likely to agree with Zumwalt and Craig (2005) that, "teaching requires a mix of intellectual and personal qualities" (p. 183). Following their study of distinguished teachers, Baiocco and deWaters (1998), established what they term the "supertraits" of teaching. Their list includes: 1) enthusiasm, 2) sociability/friendliness, 3) organisation, 4) conscientiousness, 5) optimism, and 6) flexibility. Others, including Gardner (1983) and Goleman (1995), have created similar lists of ideal traits.

Goleman (1995) in particular has identified a set of abilities and personal characteristics vital to life success known as emotional intelligence. Goleman's definition of emotional intelligence begins with five parts: 1) knowing emotions, 2) managing emotions, 3) motivating oneself, 4) recognising emotions in others, and 5) handling relationships (p. 43). This depiction of emotional intelligence is broad enough to include impulse control, hardiness, self-awareness, and character. Remarkably, this model of emotional intelligence, together with the "supertraits" of teaching, appears to align with NCATE's depiction of desirable teaching dispositions. Efforts focused on

teacher recruitment and education which focus almost entirely on measures of traditional intelligences such as GPA and college entrance exam scores, and IQ, may benefit from a shift in focus toward such characteristics.

One conception of emotional intelligence, referred to as the ability model, may potentially inform teacher education. Proponents of the ability model typically define emotional intelligence as, “the ability to perceive and express emotion accurately and adaptively, the ability to understand emotion and emotional knowledge, and the ability to use feelings to facilitate thought, and the ability to regulate emotions in oneself and in others” (Salovey & Pizarro, 2003). The ability model originally proposed by Salovey and Mayer (1990) has narrowed to include four basic emotional abilities. Titled the four-branch model, these four abilities of emotional intelligence are: (1) perceiving emotions, (2) using emotions to facilitate thought, (3) understanding emotions, and (4) managing emotions.

Perceiving emotions

The first branch of the model involves perceiving emotional states. This branch is dependent on an individual’s ability to accurately assess her own emotions. “If each time an unpleasant feeling emerged,” note Mayer, Salovey, and Caruso (2000), “a person turned his attention away, he would learn nearly nothing about feelings” (p. 109). Perceiving emotions includes the ability to recognise the feelings of others. This ability involves, “paying attention to and accurately decoding emotional signals in facial expressions, tone of voice, or artistic expressions” (Salovey & Pizzaro, 2003, p. 264). Individuals high in this branch of emotional intelligence are able to make accurate emotional appraisals of those around them by attending to these various expressions (Mayer et al., 2004).

Using emotions to facilitate thought

The second branch of this model focuses on the ability to take feelings into account when problem solving or reasoning (Salovey & Pizzaro, 2003). The emotional facilitation of thought relates to how emotion alters cognition and impacts thought (Mayer & Salovey, 1997; Mayer et al., 2000). Emotions can either be helpful or detrimental to cognitive abilities, a catalyst or an interruption. Individuals strong in this ability use emotions to facilitate and assist their thinking (Mayer, Salovey, & Caruso, 2004).

Understanding emotions

The ability to understand how emotions change or evolve in self and others is an important aspect of emotional intelligence. This ability is demonstrated by one’s competency in recognising, labeling, and grouping similar emotions (Mayer & Salovey, 1997). Understanding emotions also relates to the ability to, “analyze emotions, appreciate their probable trends over time, and understand their outcomes” (Mayer et al., 2004, p. 199).

Managing emotions

The fourth branch in this model of emotional intelligence is centered on one's ability to manage emotions. While emotionally intelligent people may not always wear emotions on their sleeve, nor do they bury them. Mayer et al. (2000) note specifically, "management encourages emotions to be experienced, although not always expressed" (2000, p. 108). Thus, managing emotions in an emotionally intelligent way requires an understanding of appropriate time and setting for emotional expression.

While it has been hypothesized that highly emotional intelligent individuals are drawn to occupations involving social interactions such as counseling and teaching (Mayer et al., 2004), studies exploring emotional intelligence among teachers using the ability model have just begun. Recently Perry, Ball, and Stacey (2004) developed the Reactions to Teaching Situations measure (RTS) to help implement research related to emotional intelligence and teaching. The RTS includes 10 vignettes of typical teaching situations and provides teachers with four response options representing each of the four branches of emotional intelligence. Using the RTS with 211 teachers in Australia, Penrose, Perry, and Ball (2007) found that emotional intelligence was positively associated with teacher self-efficacy. Based upon this finding, Penrose et al. contend that enhancing teacher's emotional intelligence may increase efficacy and subsequently lead to improved student achievement. Furthermore, the authors recommend developing pre-service teacher education courses designed to increase teacher candidates' emotional intelligence (Penrose et al., 2007). To date, however, no research has been conducted to determine how emotional intelligence impacts, or predicts, student teaching performance. At a time when teacher education programs are working hard to recruit the highest quality applicants and increase the effectiveness of their teaching candidates, exploring the potential relationship between emotional intelligence levels and teaching effectiveness should be considered. The purpose of this study was to examine the validity of emotional intelligence in general, and as a theory which may or may not inform teacher education. This study was designed to revisit traditional quality indicators used in teacher recruitment and explore their relationship with emotional intelligence and student teaching performance. Finally, this study aimed to understand the relationship between emotional intelligence and student teaching performance. To this end, the following research questions helped to guide this study:

- a. To what degree do each of the proposed quality indicators (GPA, ACT scores, Praxis II exam scores, and emotional intelligence as measured by the MSCEIT, correlate with one another?
- b. How does emotional intelligence, as measured by the MSCEIT, correlate with student teacher performance as evaluated by a university supervisor using an assessment rubric based on INTASC standards?
- c. Which proposed quality indicators (GPA, ACT scores, Praxis II exam scores, or emotional intelligence as measured by the MSCEIT, and combination of indicators, correlate most with student teacher performance as evaluated by a university supervisor using an assessment rubric based on INTASC standards?

Methods

Participants

A total of 74 undergraduate secondary teaching candidates at a large, private, NCATE accredited, university in the Western United States participated in this study. Each participant was student teaching in either a junior high or high school and was observed and evaluated by a university supervisor. Prior to their student teaching experience, participants completed their course work in their content area, as well as completing secondary education course requirements. In addition, participants had also completed the *Praxis II: Subject Assessment Tests* designed to measure each candidate's particular subject matter knowledge.

Design

This study utilised a correlation research design. This investigation examined the association of four predictor variables on one criterion variable. Predictor variables in this study included ACT scores, cumulative college GPA, Praxis II exam scores, and MSCEIT results. The criterion variable in this study was student teacher performance as determined by individual university supervisors using an assessment rubric based on INTASC standards.

Measures

Consistent with other investigations of teacher quality (see Zumwalt & Craig, 2005), this study used ACT results and the cumulative collegiate GPA of each participant as a proxy for intellectual intelligence and academic performance. ACT composite scores are rounded to the nearest whole number ranging from 1 (low) to 36 (high) and reflect the average of English, math, reading, and science scores, while GPA is calculated on a 4-point scale rounded to the nearest one-hundredth. In harmony with the literature identifying teacher content knowledge as a teacher quality indicator, content-specific Praxis II exam results were utilised as well. Individual Praxis exams vary across content areas with typical possible score ranges of 250-990 and 100-200. Although Education Testing Service (ETS), the tests' developers and administrators, provide median scores for each test, these scores cannot be compared across content areas given that average performance scores vary greatly. For these reasons, Praxis II exam score results were standardised for comparison.

Emotional intelligence ability was measured using the online version of the MSCEIT 2.0. The MSCEIT contains 141 items covering eight tasks, which are divided into the four branches of the ability model of emotional intelligence. Analysis of the data is done by the test's publisher (Multi-Health Systems), and includes seven different scores, a report for each branch (perceiving emotions, facilitating thought, understanding emotions, managing emotions), experiential score (measuring how well one can "read" and express emotion and how one functions under the influence of emotions), strategic score (measuring how accurately an individual understands what emotions signify and how emotions in oneself and others can be managed), and a total

emotional intelligence score. MHS computes each score as an empirical percentile before positioning it on a normal curve with an average score of 100 and a standard deviation of 15. Student teacher performance was measured using the Clinical Practice Assessment System (CPAS) rubric. The CPAS is an itemised rubric containing 34 indicators of quality beginning teaching based upon 10 INTASC principles. Student teachers are evaluated and scored on each of the 10 CPAS principle areas using a Likert scale (5 = exceptional, 4 = highly competent, 3 = competent, 2 = emerging, 1 = low emerging). A final score, or average of the 10 principle scores, is also calculated for each student teacher.

Procedures

As per university guidelines, student teachers are observed six times during the semester by a university supervisor from their content area, or major, department. Student teacher supervision at the study university is done by full-time faculty members, 70-percent of which are either assistant or associate professors. Supervisors from each content area use the CPAS rubric for assessment to evaluate student teacher performance following each observation. At the end of the semester a summative evaluation of student teacher performance is made based upon the CPAS rubric providing a final score. This study utilised participant's CPAS scores from the final, or summative, evaluation of student teachers as made by each university supervisor.

Approval for this investigation was acquired from the Institutional Review Board (IRB) at the study university. A total of 178 teacher candidates completing their student teaching assignments during the Fall Semester (September - December) or Winter Semester (January - April) in secondary education received an email from the Department of Teacher Education at the study university with an attached letter inviting them to participate in the study. The principal investigator purchased the rights to a total of 75 emotional intelligence tests, and 74 participants completed the test during the five weeks that the test remained open. Once completion of the MSCEIT was verified, each participant was mailed a \$25 gift card for their participation.

Data analysis

All analyses were conducted using Statistical Analysis Software (SAS) version 9.1. Pearson r correlation coefficients were calculated to determine the association among each study predictor variable (i.e., GPA, ACT, Praxis II, emotional intelligence). In addition, Spearman rho (r_s) correlation coefficients were calculated to determine relationships among predictor and criterion variables (i.e., student teacher performance as measured by university supervisors using the CPAS rubric). Spearman rho (r_s) coefficients were used as the CPAS rubric may be considered to have ordinal properties (Creswell, 2002). Finally, multiple regression was also used to further understand the relationship between each study variable.

Results

GPA and ACT correlated ($r = .33, p = .005$), as did GPA and Praxis II exam scores ($r = .38, p = .001$), and ACT and Praxis II exam scores ($r = .46, p = .0001$). There was no

significant correlation between emotional intelligence and GPA, ACT, or Praxis II exam scores. Table 1 includes Pearson correlations for study predictor variables.

Table 1: Pearson correlations for predictor variables

Variables	1	2	3	4
1. GPA	--			
2. ACT	.33**	--		
3. Praxis	.38***	.46***	--	
4. Total emotional intelligence	-.04	.06	.13	--

** $p < .01$. *** $p < .001$

Total emotional intelligence and student teacher performance as measured by the CPAS did not correlate. Final student teaching scores did not correlate significantly with any one of the six emotional intelligence scores. Total emotional intelligence correlated significantly with five of the six emotional intelligence variables from which it is derived. Student teacher performance variables also shared a strong correlation with the sum total of their scores, or the final score variable, showing a significant correlation with each of these ten variables. Table 2 includes Spearman coefficients for each measure of emotional intelligence measured by the MSCEIT and final teaching score, including CPAS principles found to have a significant correlation with emotional intelligence.

Branch three (i.e., understanding emotions) of emotional intelligence and CPAS principle six (i.e., communication) correlated ($r = .26$, $p = .025$) as did branch four (i.e., managing emotions) and principle three (i.e., diverse learners) correlated ($r = -.23$, $p = .045$).

GPA correlated with six CPAS scores including, content knowledge ($r = .231$, $p = .048$), student learning ($r = .23$, $p = .05$), diverse learners ($r = .27$, $p = .02$), planning ($r = .25$, $p = .03$), professionalism and interpersonal relationships ($r = .27$, $p = .02$), and final score ($r = .28$, $p = .02$).

Table 2: Spearman correlations of MSCEIT and CPAS scores

Variables	1	2	3	4	5	6	7	8	9	10
1. Branch 1	--									
2. Branch 2	.37**	--								
3. Branch 3	.33**	.31*	--							
4. Branch 4	.05	.17	.19	--						
5. Experiential	.86**	.77*	.39**	.13	--					
6. Strategic	.28**	.31*	.79**	.74**	.36**	--				
7. Total EI	.78	.73*	.64**	.41**	.92**	.69**	--			
8. Diverse learn.	.04	-.08	.12	-.23*	-.01	-.07	-.03	--		
9. Comm.	.04	.15	.26*	-.09	.11	.11	.23	.35**	--	
10. Final score	.03	.04	.16	-.06	.05	.08	.06	.65**	.58**	--

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

ACT scores did not significantly correlate with any CPAS principle scores.

Praxis exam scores correlated with four CPAS scores including, content knowledge ($r = .32$, $p = .007$), reflective practitioner ($r = .4$, $p = .001$), professionalism and interpersonal relationships ($r = .32$, $p = .008$), and final score ($r = .32$, $p = .007$).

When controlling for other study variables, multiple regression statistics found combination of Praxis (partial $r^2 = .11$; $F = 7.5$, $p = .008$) and GPA (partial $r^2 = .05$; $F = 3.3$, $p = .07$) scores explained 16-percent of the variance in CPAS scores.

Discussion

The first research question guiding this study aimed to understand the relationship among traditional teacher quality indicators and emotional intelligence. The positive and significant correlation among measures of academic performance (GPA), academic intelligence (ACT), and specific academic content knowledge (Praxis) demonstrate that these quality indicators converge with one another. As demonstrated by their high correlation coefficients, the convergent validity of these variables either indicates that each measures a similar ability or that these abilities are highly related. Of great interest to this study is the relationship between these traditional quality indicators and emotional intelligence. Indeed, a primary purpose of this inquiry was to test the discriminate validity of emotional intelligence, to discover if this new conception of intelligence is, as some report, unrelated to traditional forms of intelligence and can therefore be considered a distinct intelligence. The low correlation coefficients between emotional intelligence and GPA ($r = -.04$, $p = .729$), ACT ($r = .06$, $p = .626$) and Praxis ($r = .16$, $p = .302$) found in this investigation support the findings by Mayer et al. (2004), as well as Rosen and Kranzler (2009), in their claims that the ability model of emotional intelligence is a distinct intelligence.

Investigating the possible relationship between emotional intelligence and student teacher performance yielded two significant correlation coefficients. First, branch three (i.e., understanding emotions) of emotional intelligence correlated positively and significantly ($r = .26$, $p = .025$) with CPAS principle six (i.e., communication). Within the ability model of emotional intelligence, understanding emotions relates specifically to one's ability to grasp how emotions change and how similar emotions are recognised, organised, and interrelated. Individuals with this ability have the foresight to see and understand how emotions develop, evolve, intensify, and impact dealings with others. This ability has been referred to as competence in an "emotional language" that is critical to emotional intelligence (Mayer, Salovey, & Caruso, 2002). As a CPAS principle, communication can be divided into a teacher's communication knowledge, dispositions, and performances. According to INTASC's model standards (1992), communication knowledge refers to a teacher's ability to recognise both verbal and nonverbal communication techniques, an understanding of how cultural and gender differences affect communication, as well as an understanding of language in learning. Communication dispositions of effective teachers include valuing and encouraging the many ways students seek to communicate, appreciating and responding to the cultural dimensions of communication, and being a thoughtful and responsive listener. Finally,

effective teacher communication performances include acknowledgment of and responsiveness to different modes of communication, the ability to purposefully ask questions to stimulate discussion, and sensitivity to nonverbal cues given and received (INTASC, 1992). An understanding of how emotions impact dealings with others, in this case students, is beneficial in cultivating the sensitivity to cultural and gender communication differences that effective teachers understand and model.

Second, emotional intelligence branch four (i.e., managing emotions) and CPAS principle three (i.e., diverse learners), correlated negatively and significantly ($r = -.23$, $p = .045$). As described in the ability model of emotional intelligence, managing emotions is the capacity to “remain open to emotional information at important times, and closed to it at other times” (Mayer et al., 2002, p. 75). Successfully managing emotions includes openly working through feelings, both pleasant and unpleasant, at the right time and in the right way. Managing emotions requires a self- and social-awareness, an understanding of how emotions can contribute to thought and when such emotions and thoughts should be expressed. It is somewhat perplexing that managing emotions is negatively correlated with CPAS principle three scores. Principle three measures a student teacher’s understanding of how students differ in their approaches to learning and how she creates instructional opportunities that are adapted to diverse learners. Teachers competent in this principle implement teaching approaches that are sensitive to multiple experiences of learners, accommodate for individual student needs, and seek to understand students’ families, cultures, and communities in an effort to connect this information with the subject matter being taught (INTASC, 1992).

One possible explanation of the negative correlation of these variables is that student teachers who are lower in branch four intuitively attempt to compensate for deficiencies in this area by seeking to more fully adapt their instruction to the needs of diverse learners. Conversely, student teachers who feel fluent in this “emotional language” may assume that they are naturally sensitive to the needs of all students and need not make special attempts to adapt instruction. This explanation is supported generally by study findings indicating that many teachers falsely assume their instruction is culturally responsive and meets the needs of a diverse student population when in fact it does not (Rosenberg, 1998; Spelman, 1995). Gay and Kirkland (2003) note several key challenges in developing the self-reflection and critical consciousness skills required for preservice teachers to engage in the culturally relevant teaching related to CPAS principle three. These challenges include a tendency to consider issues associated with diversity and education in a superficial manner without examining personal beliefs and attitudes related to culture, class, ethnicity, and racism.

While those skilled in managing emotions presumably know when to, and not to, express emotions, it is likely that even students high in this branch of emotional intelligence may have elected to remain silent during important discussions of racial and cultural diversity in their teacher education courses. Silence is a frequent response to discussions of diversity in teacher education programs, a response which Gay and Kirkland (2003) consider to be a considerable obstacle in developing the critical consciousness needed to know, understand, and meet the needs of diverse learners. An alternative explanation for this finding is that participants scoring high in branch four

are those who tend to teach without emotion, perhaps choosing to suppress emotions which may otherwise lead them to accommodate individual cultural or diversity needs. This explanation is supported by the concern of Noddings (1997) who cautions that many young teachers believe they should be emotionless and dispassionate, even assuming the role of a neutral third-party caught between student and subject.

The first part of the third research question called for an examination of the impact that each of the traditional quality indicator variables (i.e., GPA, ACT, Praxis) had on the criterion variable (i.e., student teacher performance as measured by CPAS scores). The present study found GPA to correlate significantly with exactly half of the individual CPAS principles as well as the final student teaching evaluation score. This finding appears to be consistent with earlier studies (Ferguson & Womack, 1993; Haberman & Post, 1998; Hanusheck, 1992; Samson, Graue, Weinstein, & Walberg; 1984) in establishing limited, yet not overwhelming, support for GPA as a predictor variable for teaching performance. Darling-Hammond (2000) suspects that such findings typically stem from a relative lack of variability among teacher candidates' intelligence levels. Such an explanation may be appropriate in this study given the small standard deviation among participants' GPA (.26). It is possible that if greater variability existed among participant GPA scores, that a stronger correlation among GPA and student teacher performance would be found.

While ACT scores were significantly correlated with GPA and Praxis scores, and GPA and Praxis scores significantly correlated with student teacher performance as measured by portions of the CPAS, it is interesting that ACT and CPAS scores did not correlate significantly. Although perhaps counter-intuitive, these results confirm the findings of Byrnes, Kiger, and Shechtman (2003) who evaluated the use of group interviews to select students into teacher education programs. Byrnes et al. (2003) concluded that academic criteria, including both GPA and ACT scores, failed to predict future student teaching performance. Moreover, they discovered a negative association between ACT scores and student teacher evaluations made by university supervisors; as ACT scores went down, evaluation scores went up. This relationship is difficult to explain. It is possible that student teachers with increased academic intelligence fail to adequately prepare for teaching, choosing rather to rely on their intellect and academic abilities. These individuals may have a false sense of confidence in teaching based either on their personal history of academic success or on the assumption that knowledge can be readily transferred from teacher to student. Participants with lower ACT scores, on the other hand, may have further developed other personal qualities recognised and valued by the CPAS rubric to compensate for their lower intellectual abilities. This final explanation, however, would perhaps have more credibility if ACT scores and emotional intelligence had shared a positive significant correlation.

The second part of research question three was to determine which of the predictor variables (i.e., GPA, ACT, Praxis, emotional intelligence) could be combined to form the best prediction of student teacher performance. Using multiple regression, a model consisting of Praxis and GPA variables explained 16-percent of the variance in CPAS scores. At first glance this finding supports efforts to raise GPA requirements for those entering, and graduating from, teacher education programs. These results, likewise,

may appear to lend support to those who would argue for higher cut-off scores on teacher tests when granting educator licensure and certification. However, given that the current regression model leaves 85-percent of the variance in final CPAS scores unexplained, raising the academic performance bar and heightening teacher test requirements may offer diminishing returns. Zumwalt and Craig (2005) report that while both efforts have recently been utilised in an attempt to increase teacher quality, there is only limited empirical research supporting these measures.

Implications

This study has several implications for the field of teacher education and emotional intelligence. This study helps further establish the necessity of teacher education. The need for teacher education is illustrated by the failure of ACT scores to correlate with CPAS scores. The ACT is used primarily by university admissions offices and is designed to measure applicants' academic preparedness for university study. In no way does the ACT reflect what the student has gained during her study at the university. While ACT scores may appear to be predictive of students' academic success at the university level in general, they are not predictive of student teaching performance. Of greater importance, this finding implies that academic preparedness and scholastic success alone do not predict student teacher performance, and may be a poor indicator of future teaching quality. Amidst the recent call for alternative teacher training, licensure, and certification, and USDE's questioning the effectiveness of traditional teacher education, some have come to conclude that academic performance, real-world professional experience, or other competencies can replace formal teacher education (Zeichner & Conklin, 2005). This study helps to refute such notions by highlighting the positive correlation between successful university study, as indicated by GPA, and the content knowledge preparation gained in teacher education programs, as measured by the Praxis exam, with CPAS scores.

As the single best predictor of student teacher performance, findings from this study support the continued use of teacher tests such as the Praxis II exam. The study university in this investigation utilises the Praxis II for program quality evaluation and entrance into the clinical stage of teacher education, or student teaching. In addition, the state in which the study university is located uses Praxis II results to demonstrate compliance with the highly-qualified teacher requirements.

Findings from this study would imply that, although emotional intelligence may be a distinct form of intelligence which varies from traditional intelligence, it is not an ability which should largely concern the field of teacher education. While there has been speculation that emotional intelligence may be helpful in fields such as teaching, the current study failed to establish substantial support for such claims. With the exception of understanding emotions, the current study does not support using the four branch ability model of emotional intelligence in making admissions decisions to teacher education programs. Furthermore, this study offers only limited support for the teaching of emotional knowledge or understanding within teacher education programs. While there is some evidence that teaching emotional intelligence can be accomplished (Nelis, Quidbach, Mikolajczak, & Hansenne, 2009), few suggest that emotional

intelligence can or should be taught in schools, rather teaching emotional knowledge as a way of increasing emotional understanding has been recommended. With only one positive correlation between the four branch model of emotional intelligence and the CPAS, it seems unnecessary for teacher education programs to emphasise the emotional knowledge and understanding required for emotional intelligence.

Notwithstanding the complex nature of teaching and the increasingly diverse needs of students, traditional measures of academic competence and intelligence may be sufficient predictors of future teaching quality. It may be that measures of intellectual and academic abilities, although perceived as narrow in scope (Zumwalt & Craig, 2005), are inherently reflective of nonintellectual qualities necessary for their achievement. For example, although a high GPA is a sign of intellectual competence, it is also indicative of one's determination, dedication, ambition, focus, drive, and sacrifice presumably necessary in its attainment. It stands to reason that GPA and Praxis scores can reveal much more about a teaching candidate's disposition, character, and being, than what merely meets the eye during a review of her academic performance or test of her content knowledge. When seen in this light, perhaps added measures of nontraditional intelligence are unnecessary in teacher education.

On the other hand, even if academic indicators could be used to evaluate nonintellectual traits, should teacher education abandon efforts to understand nontraditional teacher quality indicators? Considering that the impact of the traditional quality indicators examined in this study combined to account for such a small amount of variance in actual student teacher performance, it stands to reason that there is much more to learn and understand about predicting quality student teaching. Rather than abandon the pursuit of nontraditional quality indicators, perhaps a different method of inquiry is needed. A qualitative research design may be more appropriate for uncovering and understanding the impact that nontraditional qualities such as emotional intelligence have on teaching.

There are several areas that additional research should focus on. To begin, Mayer and Cobb (2000) describe intelligence as a "capacity to learn" (p. 177). It may be that those participants who scored high on the MSCEIT are those who possess the greatest capacity for learning to utilise their emotional abilities in the classroom. Although their current emotional abilities were not found to correlate with student teaching performance, it is possible that these abilities do increase their capacity to learn and will prove valuable down the road. It may also be that those high in emotional intelligence at the beginning of their career may be more resilient and remain in the classroom longer due to the emotional abilities they possess and continue to cultivate. Although not using the ability model of emotional intelligence, Chan (2006) found emotional intelligence decreased the likelihood of teacher burnout among secondary teachers in Hong Kong. Therefore, a longitudinal study examining the teaching quality of these participants after five or 10 years in the classroom may offer valuable insights as to the impact of emotional intelligence on teacher performance and retention.

While participation in this study was restricted to only those teaching at the secondary level, future research should be done examining the potential impact of emotional

intelligence on student teachers in the elementary grades. It is possible that the prolonged interaction and extensive interpersonal communication experienced between elementary teachers and the students they work with throughout the entire day and school year may demonstrate a relationship between student teacher performance and emotional intelligence that this study was unable to identify.

Teacher education research must diligently seek to understand the additional factors leading to quality teaching so that policy makers can make informed decisions that will invite, rather than restrict, minority students choosing to teach. In the current study, GPA and Praxis exam scores were only able to explain 15-percent of the variance in CPAS scores. Future studies aimed at understanding which factors contribute to the remaining 85-percent are certainly justified. Insight and understanding of these unknown qualities or factors may have a tremendous impact in establishing a more diverse teaching population. Many fear that raising the bar for teacher candidates by increasing GPA, college entrance exam, and teacher test requirements will lead to an even more homogeneous teaching pool in terms of race and ethnicity (Zumwalt & Craig, 2005). Given that the standards aimed at increasing the quality of teachers are only able to explain a small portion of the variance in student teacher performance they should not be used exclusively if they further prevent minority teaching candidates from entering the profession.

This study was limited by several factors. First, the CPAS rubric used to evaluate student teacher performance. While this rubric was created using INTASC principles and was approved by NCATE during the study university's most recent accreditation, evaluation of student teacher performance remains somewhat vague and limited in conveying specifics about student teacher practice. The rubric contains a total of 34 indicators used to evaluate the 10 INTASC principles. Indicators such as, "Motivates students to learn," are quantified using a Likert-scale, yet a review of the rubric offers little information regarding the actual teaching practice. Without interviewing the university supervisors, or observing the student teachers, the CPAS rubric alone offers limited insight into student teacher practices or behavior.

The greatest limitation regarding student teacher evaluation in this study, however, was that student teachers were evaluated by different university supervisors. For example, participants teaching biology were evaluated by the university supervisor from the biology department. Generally speaking this arrangement is beneficial to the student teacher, as she can receive content-specific mentoring and guidance from the supervisor. This discipline-specific supervision, however, creates issues of inter-rater reliability for this study. Due to limited resources, study design did not allow for an independent evaluation of each participant.

Conclusion

This study's findings lead to several conclusions which may inform teacher education programs and future research. This study offers limited support for the continued use of GPA as a predictor of a teacher candidate's future student teaching quality. Similarly, this study confirms the efficacy of teacher tests, such as the Praxis series of exams, in

measuring a teacher candidate's content knowledge. These findings support teacher education's emphasis on curriculum and content specific courses required for an approved teaching major and the impact that such coursework has in producing highly qualified teachers. This study adds additional support for claims that emotional intelligence is a distinct form of intelligence not related to traditional intellectual intelligence. The findings of this investigation do not generally support the assumption that emotional intelligence is predictive of teaching quality among secondary student teachers. This study's findings do, however, demonstrate the important connection between branch three of emotional intelligence, understanding emotions, and communication knowledge, dispositions, and performances which are considered vital abilities for teacher candidates. Additionally, these results do not lend general support for the inclusion of emotional knowledge instruction in secondary teacher education programs.

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