THE RELATIONSHIP BETWEEN TEACHER EMOTIONAL INTELLIGENCE AND THE ACADEMIC PROGRESS OF URBAN, ELEMENTARY SCHOOL STUDENTS

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Abstract

Emotional intelligence is a comparatively new psychological concept that, in recent years, has been investigated in the field of education. While there is an abundance of research indicating that increased student emotional intelligence is positively correlated with various student outcomes, very few studies have investigated the relationship between teacher emotional intelligence and student outcomes. Given that students in urban communities often face numerous challenges that work to hinder their academic achievement, the purpose of this study was to investigate the relationship between teacher emotional intelligence and the academic progress of urban, elementary school students, as well as to investigate if parent income level and student grade level moderated that relationship. In an urban, public school district in Massachusetts, 16 teachers completed the Mayer Salovey Caruso Emotional Intelligence Test. Student academic progress scores were then calculated for 336 included students utilizing oral reading fluency percentile scores on the Dynamic Indicators of Basic Early Literacy Skills (DIBLES) assessment. Findings indicate that although there was a weak, yet positive correlation between teacher EI and student academic progress, the relationship was not statistically significant. It was also found that parent income level did not moderate the relationship between teacher EI and student academic progress. However, student grade level was found to significantly moderate the relationship between teacher EI and student academic progress, with the direction of the relationship going from positive to negative as grade level increased.

Keywords: emotional intelligence (EI), teacher emotional intelligence, student academic progress, Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT), oral reading fluency (ORF), Dynamic Indicators of Basic Early Literacy Skills (DIBLES), grade level, parent income level
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## Table of Contents

ABSTRACT ............................................................................................................................. 2  
ACKNOWLEDGEMENTS ........................................................................................................ 3  
DEDICATION .......................................................................................................................... 5  
TABLE OF CONTENTS ........................................................................................................ 6  
LIST OF TABLES ................................................................................................................... 9  
LIST OF FIGURES ................................................................................................................ 10  
CHAPTER I: INTRODUCTION ............................................................................................. 11  
  Statement of the Problem ...................................................................................................... 11  
  Significance of the Study ...................................................................................................... 14  
    Practical Significance ........................................................................................................ 14  
    Research and Theoretical Significance .............................................................................. 16  
  Positionality ....................................................................................................................... 17  
  Research Questions ........................................................................................................... 18  
  Theoretical Framework ....................................................................................................... 19  
  Summary .............................................................................................................................. 21  
CHAPTER II: LITERATURE REVIEW .................................................................................. 22  
  Emotional Intelligence ........................................................................................................ 22  
    Historical Overview ......................................................................................................... 22  
    Theories ............................................................................................................................ 24  
      Mayer and Salovey ......................................................................................................... 24  
      Emotional Quotient ....................................................................................................... 25  
      Goldman’s Theory ......................................................................................................... 26  
    Models .............................................................................................................................. 27  
    Measurement Tools ......................................................................................................... 28  
      MSCEIT ......................................................................................................................... 28  
      EQ-I .............................................................................................................................. 29  
      ECI-2 ............................................................................................................................ 30  
    Summary ......................................................................................................................... 30  
  Teacher Emotional Intelligence ............................................................................................ 32  
    Previous Research .......................................................................................................... 32  
    Teacher Emotional Intelligence and Efficacy .................................................................... 33  
    Teacher Emotional Intelligence and Student Outcomes .................................................. 37  
    Summary .......................................................................................................................... 41
Conclusion .............................................................................................................. 42
CHAPTER III: RESEARCH DESIGN ....................................................................... 43
  Research Questions .............................................................................................. 43
  Research Design ........................................................................................................ 46
  Population and Sampling ...................................................................................... 48
  Data Collection ........................................................................................................ 51
    Instruments .......................................................................................................... 52
    Procedures .......................................................................................................... 55
  Data Analysis .......................................................................................................... 57
  Validity, Reliability, and Generalizability .............................................................. 61
    Validity and Reliability ......................................................................................... 61
    Generalizability ..................................................................................................... 64
  Protection of Human Subjects .................................................................................. 64
  Summary .................................................................................................................. 65
CHAPTER IV: RESEARCH FINDINGS ....................................................................... 67
  Data Cleansing ........................................................................................................... 67
  Assumption Checking ............................................................................................... 68
    Pearson’s r Analysis ............................................................................................... 69
    Moderation Analysis .............................................................................................. 70
  Demographics ........................................................................................................... 71
    Teacher Participants ............................................................................................... 71
    Included Students .................................................................................................. 71
  Descriptive Statistics ............................................................................................... 72
    Teacher EI Scores ................................................................................................. 72
    Academic Progress Scores .................................................................................... 73
  Data Analysis ........................................................................................................... 74
    Analysis for Overarching Research Question .................................................... 74
    Analysis for Sub-question 1 .................................................................................. 75
    Analysis for Sub-question 2 .................................................................................. 78
  Summary .................................................................................................................. 80
CHAPTER 5: DISCUSSION OF RESEARCH FINDINGS .............................................. 82
  Results and Discussion of Research Questions ..................................................... 82
    Overarching Research Question and Corresponding Hypothesis ....................... 82
    Sub-question 1 and Corresponding Hypothesis .................................................. 84
Sub-question 2 and Corresponding Hypothesis.................................85
Implications of Findings........................................................................88
  Implications for Theory .................................................................88
  Implications for Research ..............................................................88
  Implications for Practice ...............................................................89
Research Limitations .............................................................................89
Areas of Further Research .....................................................................92
Conclusion .............................................................................................94
REFERENCES .............................................................................................98
APPENDIX A – PARTICIPANT EMAIL AND ATTACHED DOCUMENTS......109
APPENDIX B – APPROVAL LETTERS.........................................................113
APPENDIX C – MSCEIT SAMPLE QUESTIONS.........................................115
APPENDIX D – INSTITUTIONAL REVIEW BOARD APPROVAL..............117
APPENDIX D – ASSUMPTION CHECKING RESULTS...............................118
List of Tables

Table 1. Percentage of Student Population Characteristics ........................................... 48
Table 2. Population Characteristics Increase in Percentage from 1994 to 2004 ................. 49
Table 3. Included Students’ Gender and Grade Level ...................................................... 72
Table 4. Included Students’ Grade Level and Parent Income Level ................................. 72
Table 5. Descriptive Statistics for Teacher EI Scores ..................................................... 73
Table 6. Descriptive Statistics for Included Students’ Academic Progress Scores .......... 74
Table 7. Pearson’s r Correlation Results (Transformed Teacher EI and Transformed Student Academic Progress) ......................................................................................... 75
Table 8. Moderation Analysis: Model Summary Output (Potential Moderating Variable of Grade Level) ................................................................................................................. 76
Table 9. Moderation Analysis: Conditional Effects Output (Potential Moderating Variable of Grade Level) ................................................................................................................. 77
Table 10. Moderation Analysis: Model Summary Output (Potential Moderating Variable of Parent Income Level) ............................................................. 78
Table 11. Moderation Analysis: Conditional Effects Output (Potential Moderating Variable of Parent Income Level) ............................................................. 79
List of Figures

Figure 1. Summary of problem of practice.................................................................12

Figure 2. Know and wonder diagram for problem of practice......................................13

Figure 3. Summary of research on teacher emotional intelligence...............................41
Chapter I: Introduction

Problem Statement

Although the Merriam-Webster (2014) dictionary defines schools as institutions for the teaching of children, students in urban communities often face numerous challenges that work to hinder academic achievement as compared to their suburban and rural counterparts. In terms of educational support, urban children experience lower levels of parental involvement in their education (Benson & Martin, 2003). Urban students also experience fewer achievement enhancing advantages, such as books in their homes, stimulating activities outside of school, and exposure to well educated adults (Rothman, 2007). In regard to home environment, children from urban communities face increased rates of poverty, single-parent families, physical and sexual abuse, exposure to domestic violence, and parental drug and alcohol abuse (McCurdy, Kunsch, & Reibstein, 2007; McCurdy, Mannella, & Eldridge, 2003), which have all been associated with poor academic achievement (Carrell & Hoekstra, 2012; Conners et al, 2003; Coohey, Renner, Hua, Zhang, & Whitney, 2011; Lacour & Tissington, 2011; Suet-Ling, Dronkers, & Hampden-Thompson, 2003). Further, it has been suggested that lower levels of academic achievement lead to academic frustration and often result in misbehavior in the classroom (McCurdy et al., 2003).

Research has, in fact, indicated that urban schools report significantly higher rates of students exhibiting maladaptive behaviors (McCurdy et al., 2003). Maladaptive student behaviors within the classroom have been found to decrease academic attainment for the individual student as well as for peers within the classroom (McPherson, Schwartz & Passe, 2011). Behavioral outbursts typically interrupt student learning and decrease time on task for all
students in the classroom. Time on task has been found to be “the most influential factor in student achievement” (Peters, 2004 p.38).

![Problem of Practice](image)

**Figure 1.** Summary of problem of practice.

Interestingly, a relationship between certain teacher characteristics and student behavior has been established (Nizielski, Hallum, Lopes & Schutz, 2012; Wittaker & Harden, 2010). Wittaker and Harden (2010) found that the level of teacher-student conflict was positively related to student externalizing behaviors in preschool aged children. Based on their findings, they recommended “extensive support, observation, and feedback for teachers regarding their interactions and relationships with children, particularly those exhibiting challenging behaviors” (p.189). In 2012, Nizielski et al. investigated the role of teacher emotional intelligence (EI) on student misconduct and found that teacher EI was negatively related to student misconduct. They concluded that a teacher’s ability to effectively regulate his or her emotions allows for the
physical and behavioral expression of emotions in a manner that positively influences student behavior. Perry and Ball’s (2007) previous findings support that conclusion. Perry and Ball found that compared to teachers with low EI, teachers with high EI respond very differently to situations that involve negative emotions.

Although research has established that teacher EI is related to student behavior, teacher EI may also be associated with other educational factors (Nizielski et al., 2012). Specifically, based on the link between maladaptive student behavior and overall classroom academic achievement, teacher EI may be related to academic achievement (McPherson et al., 2011). In fact, Jones, Bouffard, and Weissbourd (2013) argue that teacher social and emotional skills are vital to student academic success. However, they make this argument theoretically and do not present any empirical data that directly supports their claims.

Figure 2. Know and wonder diagram for problem of practice.
A few questions may be raised if a relationship between teacher EI and student academic achievement does exist. First, given that the majority of the above mentioned research has focused on urban students from low income households, one may wonder what impact family income may have on a potential relationship between teacher EI and student academic achievement. Similarly, one may wonder if a student’s age or grade level may have any effect on the potential relationship. Therefore, the purpose of this study was to first investigate the relationship between teacher EI and academic progress of urban, elementary school students and then to investigate if parent income level or student grade level moderate the impact of that relationship.

**Significance**

**Practical significance.** January 1964 marked the beginning of federal involvement in educational policy (Groen, 2012). During Lyndon Johnson’s first State of the Union address, he declared an American war on poverty and reported that in order to fight this war the country would focus on improving the American school system (Johnson, 1964). The following year the Elementary and Secondary Education Act (ESEA) was passed which allotted funding through Title 1 in order to address the educational needs of disadvantaged, handicapped, neglected, and delinquent children (Groen, 2012). Although Congress has reauthorized ESEA every few years since it was first passed in 1965, there have been significant fluctuations in where funding is aimed: from strictly defined populations of need to more broad definitions that, at one point, encompassed more than 90% of the nation’s school districts (Groen, 2012). In 2001, Congress transformed both the nature and intent of ESEA and renamed it ‘No Child Left Behind’, or NCLB (Groen, 2012). Although NCLB set high standards across the board, with the goal of all students reaching proficiency on state assessments by 2014, resources and efforts were focused
on specific socio-economic and ethnic groups that typically experienced gaps in academic achievement (Rebell & Wolf, 2008). There was an emphasis in the legislation that each and every student would receive a fair, equal, and high quality education (Rebell & Wolf, 2008).

It was with the passage of NCLB that the federal government not only acknowledged, but emphasized the link between effective teachers and increased student academic achievement. In order to ensure that all students, particularly those who typically experience achievement gaps, were receiving a high quality education, NCLB mandated that by June of 2006 every teacher in core content areas be ‘highly qualified’ (No child left behind, 2011). The definition of a ‘highly qualified’ teacher, under NCLB, is one who holds a bachelor’s degree, full state certification, and demonstrates competency in all core academic subjects they teach (U.S. Department of Education, n.d.). NCLB legislation surrounding ‘highly qualified’ teachers purports to be based on statistical data and research; however, this claim has come under question and been criticized (Darling-Hammond & Young, 2002). Regardless, it is evident that the U.S. government acknowledges the vast significance teachers have on student achievement outcomes, especially for students who typically experience achievement gaps, such as urban students.

If the hypotheses in this study are substantiated, its results could be used to outline the importance of teacher EI as a factor in effective teaching and increased student academic achievement. It is hoped that teacher preparation programs would then consider incorporating EI training as a universal component of their curriculum. If this option is found to be too costly, teacher preparation programs could alternatively, have EI assessments become part of initial placement testing. EI training could then be mandated for candidates who do not attain sufficient EI levels during the initial assessment. School districts could also implement EI training programs as an intervention for teachers who consistently struggle with classroom management
or establishing positive relationships with students. In addition, positive results from this study may help increase funding to teacher preparation programs and school districts for evidence-based EI training programs.

**Research and theoretical significance.** After the concept of EI was developed, empirical research initially centered on its relationship to one’s management success in the business sector. Research on EI then branched into the field of education where researchers investigated the relationship between student’s EI and various outcomes such as academic achievement. However, few studies have investigated the relationship between teacher EI and student outcomes. Further, the relationship between teacher EI and a student outcome more specifically related to academic achievement has only been the topic of one study. In 2014 Curci, Lanciano, and Soleti found that teacher EI abilities were positively associated with student academic performance. The results of this study will be an initial step in establishing an empirical relationship between teacher EI and student academic progress, if one does exist.

If results of the current study do indicate a significant relationship between the two variables, future researchers will be able to build on these results. In the near future, studies can aim to replicate the results, first with similar populations to help substantiate results and later with other populations to help generalize findings. After the relationship between the two variables have been more thoroughly investigated, research could then focus on the strength of the relationship between teacher EI and student academic progress as compared with other variables previously found to be associated with increased academic progress. Finally, future researchers could attempt to establish a causal relationship between teacher EI and student academic progress.
Positionality

It is often the case that each year the same, small handful of teachers are responsible for the majority of office referrals at the urban, combined elementary and middle school where this author is employed as a school adjustment counselor. When specific teachers are asked about high referral rates, they typically reference students with ‘behavior issues’ or classes where certain students ‘feed off’ each other and create unmanageable behaviors. While these hypotheses may be valid in some instances, they become questionable when the same teachers continue to refer students at high rates, over time. Why are teachers at previous or subsequent grade levels not frequently referring these same students with ‘behavior issues’? Further, why do other teachers who instruct the same student groups during that school year rarely write referrals? When the same teachers comprise the majority of office referrals over time, there is something more going on; the blame cannot be placed solely on student attributes.

High rates of office referrals bring up two major concerns for administrators. The first is regarding how missed instruction time impacts the academic progress of individual students who are being sent out of the classroom due to their behavior. The second is how continued disruptions to learning impact the academic progress of all students within the classroom. Student misbehavior disrupts group and independent work time and direct instruction time gets interrupted when teachers handle such misbehavior. The more disruptions that occur, the less time there is on learning for all students in the classroom.

During informal classroom observations conducted by this author, the focus became monitoring how student misbehavior was handled. Why, with some teachers, was student misbehavior able to be diffused, while with other teachers, similar misbehavior escalated? Over time, continued observations brought this author to the conclusion that there was something in
what the teachers were doing, in how they were handling students’ initial inappropriate behavior or possibly in the relationship teachers established with students that allowed them to effectively diffuse initial inappropriate behavior. After discussions with numerous teachers and administrators, extensive independent research, contemplation, and reflection, this author’s conclusion is that teachers who frequently refer students to the office have deficits in key areas of EI. Further, these deficits in teacher EI appear to be associated with increased student misbehavior, which, in turn, seemingly decreases academic progress. However, if there is a relationship between teacher EI and student behavior as well as a relationship between student behavior and academic progress, is teacher EI associated with academic progress?

**Research Questions**

This study investigates one overarching research question and two sub-questions. It first examines how teacher EI is related to student academic progress in the overall population of urban, elementary school students. The study then examines characteristics that may moderate the relationship. Specifically, it examines if student grade level and parent income moderate the relationship between teacher EI and student academic progress. The following are the overarching and sub-questions that are addressed in the study:

To what extent is teacher EI related to urban elementary school students’ academic progress?

1. To what extent does student grade level moderate the relationship between teacher EI and student academic progress?

2. To what extent does parent income level moderate the relationship between teacher EI and student academic progress?
Theoretical Framework

The theory of social learning appears to be the most appropriate theoretical framework to use when examining the relationship between teacher EI and student academic progress. Green and Piel (2002) report that social learning theory builds on the theory of operant conditioning, so it is important to first review the theory of operant conditioning. Operant conditioning was developed by Skinner (1938) and can be simply defined as behavior that is modified by its consequences. Martin and Pear (2003) outlined several principles of operant conditioning that aid in modifying a person’s behavior.

The three principles of operant conditioning that are most relevant to the problem of practice under investigation are reinforcement, extinction, and punishment. There are two types of reinforcement that work to increase how often a behavior of interest is emitted: positive reinforcement and negative reinforcement. Positive reinforcement takes place when a positive reinforcer, or something a person finds pleasurable, is presented after a behavior of interest occurs. Negative reinforcement takes place when a negative reinforcer, or something an individual finds displeasurable, is removed after a behavior of interest occurs. The principle of extinction, on the other hand, works to decrease a behavior of interest and takes place when a behavior that was previously reinforced no longer receives reinforcement. Another principle that works to decrease how often a behavior of interest is emitted is the principle of punishment. Punishment occurs when a punisher, or something a person finds displeasurable, is presented after an individual emits a behavior of interest (Martin & Pear, 2003).

While the theory of operant conditioning describes how student behavior can be modified and shaped by teacher responses to such behavior, it does not account for the way behaviors and actions are initially acquired. Social learning theory purports that new behaviors are acquired
through observational learning and vicarious reinforcement (Green & Piel, 2002). Observational learning takes place when an individual watches a model produce a behavior and then reproduces the observed behavior in a similar situation. Vicarious reinforcement is the concept that the observer does not actually need to experience any reinforcement; the reinforcement that the model receives after emitting the behavior is enough to reinforce the observer and establish the behavior in the observers’ repertoire. Thus, a vital component of social learning theory is the cognitive aspect of the learning process (Green & Piel, 2002).

Green and Piel (2002) outline the four cognitive processes an individual goes through in order for observational learning to occur:

1. attention process – the observer pays attention to the important characteristics of the behavior and more attention is given to effective and influential models
2. retention process – the behavior is encoded into memory
3. production process – the memory of the behavior is recalled when the observer encounters a situation similar to that experienced by the model
4. motivational process – there is direct, vicarious, or self-produced motivation that causes the observed behavior to be performed

Social learning theory outlines ways in which individuals initially acquire behaviors as well as ways individuals learn from one another and provides a framework or lens through which the variables in this study will be viewed. Inherent in the problem of practice is the assumption that the observable behaviors related to teacher EI (regulation of emotional reactions and responses to students’ emotional reactions) impacts students. Social learning theory suggests that students pick up these overt EI skills through observational learning and vicarious reinforcement which work to decrease student misbehavior. Research then links decreased
student misbehavior to increased academic progress, as previously discussed (McPherson et al. 2011). Social learning theory will assist in focusing the problem of practice into research questions, methodology, and hypothesis for the current study.

**Summary**

Since students in urban communities often face numerous challenges that work to hinder their academic achievement, it is important to investigate factors that may help to increase the academic achievement of such students. While research has established that teacher EI is associated with student behavior, based on the link between maladaptive student behavior and overall classroom academic achievement, teacher EI may also be correlated with the academic achievement of urban students (McPherson et al., 2011; Nizielski et al., 2012). Therefore, the purpose of the current study is to investigate the relationship between teacher EI and the academic progress of urban, elementary school students.
Chapter II: Literature Review

The following chapter will review and summarize empirical evidence and scholarly publications that are essential to the understanding of the research question at hand which investigates how teacher EI is associated with student academic progress. The first major section will focus on EI. Areas of EI that will be reviewed and discussed include: the development of the concept of EI, the three major theories of EI, the two competing models of EI, and tools that measure EI. The second major section will focus more specifically on teacher EI. The available literature on this topic will be discussed and gaps in this area will be highlighted. The final section will be a cumulative summary and conclusion of all the research outlined during the literature review process.

Throughout the literature review process, particular attention was placed on the quality of publications. Research articles were only utilized if they were considered scholarly and had been peer reviewed. Similarly, reports, theoretical articles, and book publications were only considered if they were from reputable sources. Date of publication was also taken into consideration. Although recent publications took priority, all relevant information was reviewed and considered during the review process. Finally, author expertise was also taken into account. Following these literature review measures assisted in ensuring the integrity of the proposed study.

Emotional Intelligence

Historical overview of EI. The field of EI is relatively new as compared to other areas of psychological study. However, groundwork leading to its emergence is noted between 1900 and 1969 when a number of researchers attempted to identify a social intelligence (Mayer, 2006).
These efforts, however, were overwhelmingly discouraged and the concept of intelligence continued to be viewed, by the majority, as cognitive. The study of intelligence and emotion were considered separate entities during this period. The study of intelligence focused on the creation of psychological tests of intelligence and theories of emotion purported that emotions were largely determined by an individual’s culture.

During the period between 1970 and 1989, precursors to the idea of EI were firmly established (Mayer, 2006). Psychologists began to theorize and investigate how emotions and thought impacted one another. During this time the field of ‘cognition and affect’ emerged and examined how emotions impacted thoughts and actions. Scales to measure nonverbal information, some of which were emotional, were developed. The investigation of multiple intelligences also began and the concept of ‘interpersonal intelligence’ or the capacity to perceive and symbolize emotions was established. The field of social intelligence was also established and empirically investigated.

Between 1990 and 1994 EI emerged as a field of study (Mayer, 2006). Salovey and Mayer published the article “Emotional Intelligence” in 1990. The article provided a preliminary framework of the areas and abilities relevant to EI. Subsequently, several other articles on EI were published during this timeframe. The publications focused on EI being an actual intelligence, the creation of an ability measure of EI, and studies on EI in the field of brain science. Throughout the following three years, from 1995 – 1997, the concept of EI was popularized and became known to the general public. In 1995, Goldman published a book entitled “Emotional Intelligence” that was loosely modeled on the previously published articles on EI. The book became a world-wide best seller. During this period, Time magazine also used the term “EQ” on one of its covers bringing even more attention to the concept of EI. From 1998
to current time, the concept of EI has been further researched. To date, many theories of EI have been outlined and two competing models of EI have emerged.

**Theories of EI.** Although many theories of EI have been established, there are three theories that have been utilized most frequently in empirical research on EI and are overwhelmingly the most widely known to the general public (Mayer, 2006). The first is Mayer and Salovey’s model of EI (1997). The second is the Emotional Quotient model of EI by Bar-On (1997) and the third is Goldman’s (1995) model of EI. Each theory defines and conceptualizes EI uniquely and each theory makes different predictions about emotionally intelligent individuals. The three major theories on EI are described below.

**The Mayer and Salovey theory of EI.** Mayer and Salovey (1997) define EI as, “the set of abilities that account for how people’s emotional perception and understanding vary in their accuracy” (p. 11). This theory divides EI abilities into four branches (Mayer, Salovey, & Caruso, 2000). The first branch is ‘perception and expression of emotion’. Examples of specific abilities in this branch are identifying and expressing one’s own emotions and identifying and expressing the emotions of others. The second branch is ‘assimilating emotion into thought’. Abilities in this branch include, but are not limited to, productively prioritizing thinking based on emotion and generating emotions that successfully aid in judgment and memory. The third branch is ‘understanding and analyzing emotion’. Examples of abilities in this branch are successfully labeling complex emotions and their concurrent feelings as well as understanding relationships associated with shifts in emotions. The fourth branch is ‘regulating emotion in self and others’. Abilities in this branch include, but are not limited to, staying open to feelings and monitoring and regulating emotions in order to stimulate emotional and intellectual growth.
Mayer and Salovey report that their theory of EI predicts that, like other intelligences, EI will meet three empirical criteria (Mayer et al., 2000). First, EI problems have right and wrong answers. Second, EI skills will correlate with other measures of mental ability (as mental abilities tend to intercorrelate). Third, EI ability level will increase with age. They also outline that their model of EI predicts certain characteristics of emotionally intelligent individuals; emotionally intelligent individuals are more likely to have experienced emotionally sensitive parenting, to choose appropriate emotional role models, to have lower levels of defensiveness, to develop expert knowledge in areas related to emotional knowledge, to be able to appropriately communicate and discuss their feelings, and to be able to successfully reframe emotions.

*The emotional quotient theory of EI.* Bar-On (1997) defines EI as, “an array of noncognitive capabilities, competencies, and skills that influence one’s ability to succeed in coping with environmental demands and pressures” (p. 14). In his theory, the term emotional quotient is the number that results from the measurement of EI, similar to the intelligence quotient number that results from intelligence testing. Bar-On’s theory of EI can be broken down into five major areas with each area consisting of several specific skills, competencies, or capabilities (Mayer et al., 2000). The first main area, ‘intrapersonal skill’, consists of emotional self awareness, assertiveness, self-regard, self-actualization, and independence. ‘Interpersonal skill’ is the second main area and is comprised of interpersonal relationship skills, social responsibility skills, and empathy skills. The third main area, ‘adaptability’, consists of problem solving, reality testing, and flexibility. ‘Stress management’ is the fourth area and consists of stress tolerance and impulse control. The fifth main area, ‘general mood’, is comprised of happiness and optimism.
Bar-On (1997) reports that although his model of EI is predictive of success, this success will be based on an individual’s effort toward life goals. Thus, the model is more predictive of the potential to succeed rather than to the actual level of success an individual will achieve. More generally, Bar-On feels that the emotional quotient in combination with IQ can provide a more descriptive and robust picture of an individual’s general intelligence.

**Goldman’s theory of EI.** Goldman (1998) defines EI as “the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships” (p. 317). In this theory, EI is broken down into five main areas. The first area is ‘knowing one’s emotions’ and encompasses such skills as recognizing one’s feelings and monitoring one’s feelings. The second area is ‘managing emotions’ and includes skills such as appropriately regulating one’s feelings, ability to self-sooth, and ability to modulate unpleasant feelings. The third area is ‘motivating oneself’ and is comprised of skills such as delaying gratification and resisting impulses. The fourth area is ‘recognizing emotions in others’ and encompasses such skills as empathy and understanding what others need or want. The fifth area is ‘handling relationships’ and includes skills such as successfully interacting with others and managing others emotions.

Goldman (1995) makes very strong claims regarding the predictive value of his model of EI. He claims that his model will predict success at home, at school, and in the workplace. He reports that individuals who are emotionally intelligent will have “an advantage in any domain in life, whether in romance and intimate relationships or picking up the unspoken rules that govern success in organizational politics” (Goldman, 1995, p.36). He further claims that his model of EI “can be as powerful, and at times, more powerful than IQ” at predicting life success (Goldman, 1995, p.34).
**Models of EI.** While there are many theories of EI, all theories can be classified as either an ability model of EI or mixed/trait model of EI (Mayer, 2006; Mayer et al., 2000; Qualter, Gardner, & Whiteley, 2007). The ability model views EI as a traditional intelligence and defines EI as an ability which involves the cognitive processing of emotional information (Qualter et al., 2007). Mayer and Salovey’s theory of EI is an ability model of EI. The ability model is most often measured through ability type assessments rather than through self-report tools, as research has established that self report of EI ability correlates poorly with actual EI ability (Mayer, 2000). Critics of the ability model of EI have questioned its construct validity (Qualter et al., 2007). They cite similarities between ability EI and previously investigated psychological constructs such as emotional development and social cognition. However, proponent’s purport that ability EI is best viewed as an umbrella term which encompasses many previously investigated constructs, but taken as a whole, is a unique concept. Critics also question if ability EI is another form of crystallized intelligence, citing the correlation between the two constructs. While proponents of ability EI acknowledge the correlation between ability EI and crystallized intelligence, they report that the correlation is not strong enough to suggest that the two concepts are the same.

The mixed/trait model of EI, on the other hand views EI as a mental ability that includes many non-ability traits, typically viewed as personality characteristics (Mayer et al., 2000). Examples of these non-ability traits include happiness, social competence, optimism, and self esteem (Qualter et al., 2007). Bar-On and Goldman’s theories of EI are both examples of a mixed/trait model. The mixed/trait model typically measures EI through self report tools (Mayer, 2000). Early this century, critics of the mixed/trait model of EI began questioning the distinctiveness of the concept of mixed/trait EI from that of personality after two studies noted
significant correlations between the two concepts (Qualter et al., 2007). Since that time “researchers have made concerted efforts to address the issue of overlap between EI and personality, by examining the discriminate and incremental validity of the former” (Qualter et al., 2007, p.13). However, findings have been inconsistent and the debate regarding this issue continues. Critics of the mixed/trait model also question the validity of self-report measurement tools, citing that they typically correlate poorly with actual EI performance (Mayer et al., 2000).

**EI measurement tools.** There are numerous tools that have been developed to measure EI. This section will focus on three specific tools. These particular tools are outlined because they were designed to assess EI as described by each of the main theories, discussed previously. Each tool is outlined and its major strengths and weaknesses are discussed.

**The MSCEIT.** The Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT) is an ability based assessment utilized to measure EI as described by Mayer and Salovey (Brackett & Geher, 2006). The MSCEIT is described as an ability assessment because there are better or worse answers to each question as determined by consensus scoring or expert scoring. Consensus scoring is based on a normative sample of over 5,000 people from various parts of the world, while expert scoring is based on a sample of 21 members from the International Society of Research on Emotions, considered experts in the field. The tool is comprised of 141 questions and yields seven scores. There is one score for each of the four domain areas: perceiving emotion, use of emotion to facilitate thought, understanding emotion, and managing emotion. There are two area scores. The first area, experiential EI, is comprised of the first two branches: perceiving emotion and the use of emotion to facilitate thought. The second area, strategic EI, is comprised of the last two branches: understanding emotion and managing emotion. The final score is a total EI score.
There are both strengths and weaknesses of the MSCEIT. In regard to strengths, overall, reliability and validity of the assessment seem strong. The tool has been found to be reliable at the full-scale (greater than .90), area (above .86), and branch levels (between .76 and .91) with both consensus and expert scoring methods (Brackett & Geher, 2006). Strong test-retest reliability (.86) has been established and factor analyses indicate that the MSCEIT has a four factor structure similar to Mayer and Salovey’s four branch theory of EI. Appropriate discriminate validity from measures of intelligence and personality have also been established. There are two main concerns regarding the MSCEIT. The first is that the assessment measures the norm rather than high EI. However, that may be one reason that both consensus and expert scoring is available. The next concern is that the assessment measures culturally shaped emotional knowledge rather than actual abilities. The fact that consensus scoring includes individuals throughout the world may lessen this concern.

**The EQ-i.** The Emotional Quotient Inventory (EQ-i) is a 133 item self report measure of EI as defined by Bar-On (Brackett & Geher, 2006). The assessment utilizes a five point Likert type scale to measure five constructs: interpersonal skills, intrapersonal skills, stress management, adaptability, and general mood. The first four scales are utilized to attain an overall EQ-i score. The last construct, general mood, is not used to compute the EQ-i as Bar-On describes the category as a facilitator of EI rather than an actual component of it.

The validity and reliability of the EQ-i has been assessed through numerous empirical studies (Brackett & Geher, 2006). Overall, subscales have demonstrated strong internal reliability (greater than .90). Test-retest reliability has also been firmly established. However, factor analyses have yielded inconsistent results making structural validity of the assessment
questionable. Further, the EQ-i highly correlates with several personality measures calling into question the measures convergent/discriminate validity.

**The ECI-2.** The Emotional Competency Inventory Two (ECI-2) is utilized to measure EI as defined by Goldman (Brackett & Geher, 2006). The assessment yields two scores and consists of two separate measures: a 72 item self report measure as well as a report that is completed by a relevant observer (typically a target’s supervisor). It is important to note that the ECI-2 was developed, in part, to assess work related EI. Both measures assess a target’s 18 competencies which can be clustered into four areas: self-awareness, self-management, social awareness, and relationship management.

The validity and reliability of the ECI-2 came under fire after a 2002 publication critiquing the measure and its lack of empirical evidence (Brackett & Geher, 2006). Since that time, the authors of the ECI-2 have provided significant empirical evidence related to the measures validity and reliability. Discriminate validity for both measures has been established and strong internal reliability for observer reports has also been established. However, in regard to the self assessment measure, internal reliability is questionable with about half of the 18 competencies attaining reliability coefficients below .65. Further, factor analyses have called the structural validity of the tool into question identifying nine factors rather than 18.

**Summary.** While groundwork leading to the emergence of the field of EI took place as early as 1900, the field was not officially established until between 1990 and 1994. Since that time, empirical research on EI has taken place. Through this research, three main theories and two competing models of EI have emerged. Mayer and Salovey, Bar-On, and Goldman’s theories of EI have been the most researched and were outlined above. The two models of EI are the ability model and the mixed/trait model.
The ability model views EI as a traditional intelligence and defines EI as an ability which involves the cognitive processing of emotional information. Mayer and Salovey’s theory of EI is an ability model. While this model has experienced some critiques regarding construct validity, further research has helped to establish ability EI as a distinct construct. The mixed/trait model views EI as a mental capacity that includes both abilities and non-ability traits. Bar-On and Goldman’s theories of EI are both mixed/trait models. The construct validity of the mixed/trait model has also been questioned. However, unlike the ability model, further research has yielded inconsistent results and the question of mixed/trait EI being a unique construct has not been answered.

In regard to the measurement of EI, three main tools exist that align with the three main theories. The MSCEIT is an ability-based assessment that was developed to assess EI as defined by Mayer and Salovey. The EQ-i is a self-report measure that assesses EI as defined by Bar-On. The ECI-2 was developed to assess EI as defined by Goldman. Comparatively, the MSCEIT has been found to be the most valid and reliable of the three main tools.

With questions regarding the construct validity of the mixed/trait model of EI still left unanswered, the ability model of EI appears more valid than the mixed/trait model. The Mayer and Salovey theory of EI is the most widely researched ability model. Further, its measurement tool, the MSCEIT, is the most reliable and valid tool of the three main tools utilized most frequently in empirical research. Taking all the available research into consideration, the theory of EI that will be used in this research study is the Mayer and Salovey theory of EI and the tool that will be used to assess EI will be the MSCEIT.
**Teacher Emotional Intelligence**

In addition to reviewing the concept of EI and its current theories, models, and measurement tools, the research questions in this study also necessitate an investigation into the research on teacher EI and student outcomes. While there have been many studies that focus on EI in schools, the vast majority of them have investigated the student population. Overall, these studies have found significant positive relationships between student EI and various outcomes such as academic performance, psychological functioning, social competence, and appropriate classroom behavior (Billings, Downey, Lomas, Lloyd, & Stough, 2014; Esturgó-Deu & Sala-Roca, 2010; Lanciano & Curci, 2014; Perera & DiGiacomo, 2013; Qualter, Gardner, Pope, Hutchinson, & Whiteley, 2012; Rivers et al., 2012; Schulz & Brown, 2003). However, research focusing specifically on teacher EI is minimal and research on how teacher EI is associated with student outcomes is scarce.

**Research on teacher EI.** To date, studies that investigate teacher EI focus mainly on the relationship between teacher EI and various teacher outcomes. Some studies have focused on how teacher EI is associated with self-efficacy. These studies indicate a significant positive relationship between the two variables (Ignat, 2010; Penrose, Perry, & Ball, 2007; Rastegar & Memarpour, 2009; Şenel, Adilogullari, & Ulucan, 2014). Teacher EI and ‘burnout’ have also been investigated. Overall, this research has found a significant negative relationship between teacher EI and burnout or subsets of EI and components of burnout (Adilogullari, 2014; Brackett, Palomera, Mojsa-Kaja, Reyes, & Salovey, 2010; Chan, 2006; Platsidou, 2010). Finally, a few studies have investigated teacher EI and job satisfaction. These studies have found a significant positive relationship between the two variables (Anari, 2012; Yin, Lee, Zhang, & Jin, 2013). While these studies have found significant relationships between the outlined teacher outcomes
and teacher EI, future research involving these variables is necessary to more firmly establish the relationships as well as to generalize the findings to other populations.

**Teacher EI and teacher efficacy.** More specific to the research questions in this study, some researchers have investigated the relationship between teacher EI and teacher efficacy. While increased teacher efficacy in such studies does not necessarily mean there will be increased student academic achievement, common sense would dictate that students of teachers who are more effective would have increased levels of student achievement. In 2010, Ghanizadeh and Moafian investigated the relationship between teacher EI and teacher success, or effectiveness, in the population of Iranian teachers of English as a foreign language. In their study 89 teachers completed BarOn’s EQ-i to measure EI and 826 students of teacher participants completed the Characteristics of Effective English Language Teachers rating scale to measure teacher effectiveness. Results indicated that there is a strong, positive relationship between overall teacher EI and teacher effectiveness. Similarly, 12 of the 15 subscales of the EQ-i were found to be significantly and positively related to teacher effectiveness. Further, results indicate that teacher EI can predict 15% of teacher effectiveness. The study also found a significant and positive relationship between teacher EI and both teacher age and teacher experience.

Ghanizadeh and Moafian (2010) concluded that teacher EI is critical to effective teaching. However, their study had several limitations that may impact its validity and generalizability. Specifically, the tools utilized to measure the variables raise questions of validity. Utilization of a self report tool to measure teacher EI is assessing perceived EI rather than actual EI ability. Further, self report tools are subject to increased response bias as compared to measures that assess ability. Also, structural validity of the EQ-i has been
questioned. Similarly, the Characteristics of Effective English Language Teachers rating scale measures student perception of teacher effectiveness, rather than less subjective measures of teacher effectiveness such as increases in student’s subject matter knowledge. In regard to generalizability, this study was conducted in Iran and with teachers who taught English as a second language to students of various ages (14 – 66) and educational backgrounds (high school students to individuals with their PhD’s). This is in contrast to the population under investigation in the current study, elementary school teachers in the United States.

In a study which aimed to replicate Ghanizadeh and Moafian’s findings with a more homogenous sample, Khodadady (2012) investigated the relationship between teacher EI and teacher effectiveness. The population under investigation was specific to Iranian teachers of English as a foreign language who instructed high school students. In this study, 95 such teachers from both public high schools and private language institutes completed the EQ-i to assess teacher EI and 1704 of their high school students completed the Characteristics of Effective English Language Teachers rating scale to measure teacher effectiveness. The results of this study contradict the findings of Ghanizadeh and Moafian’s study and indicate that as teacher EI increases, teacher effectiveness decreases through a weak, but statistically significant negative relationship. Among the EQ-i’s five constructs, a statistically significant relationship was found between three of the constructs and teacher effectiveness. Stress management and adaptability were found to have a negative relationship while interpersonal competencies were found to have a positive relationship with teacher effectiveness.

Khodadady (2012) concludes that although his study did indicate a weak yet significant negative relationship between teacher EI and teacher effectiveness, the tools utilized to measure both variables have flaws that make their validity questionable. Therefore, he suggests that
future research explore the relationship between teacher EI and teacher effectiveness utilizing different measurement tools for both variables. Further limitations of this study center on issues that limit generalizability to the proposed study. While the student population in his study was more homogenous than in Ghanizadeh and Moafian’s study, the student population of high school students in Iran is not at all similar to the student population of elementary school students in the proposed study. Similarly, the teacher population in the current study is very different from the teacher population in the proposed study.

In 2012, Allen, Ploeg, and Kaasalainen also investigated the relationship between teacher EI and teacher effectiveness, with results that were in stark contrast to Khodadady’s. In their study, the population under investigation was clinical nursing faculty members of an undergraduate nursing program in Canada. The authors point out that effective clinical teaching as they define it in their study “is associated with enhanced student learning” (p.233). In their study, 47 faculty members completed two measures: the BarOn EQ-i:S (the short version of the EQ-i) to assess EI and the modified Nursing Clinical Teacher Effectiveness Inventory to assess teacher effectiveness. Data analyses found a moderately strong, positive relationship between overall EI and overall effectiveness. Statistically significant positive relationships were also found between overall EI and all teacher effectiveness sub-scales as well as between overall teacher effectiveness and all EI subscales. Further there were no significant relationships found between EI and age, years of nursing, years of teaching, level of education, or employment status.

While results of Allen et al.’s (2012) study indicate that a positive relationship between teacher EI and student academic progress is possible, there are several limitations that may affect validity and generalizability. In terms of validity, this study, as in the two studies discussed
above, actually investigated mixed/trait EI through utilization of the EQ-i:S. As outlined previously, construct validity of the mixed/trait model of EI is questionable. Similarly, teacher effectiveness was measured through a self report tool. Self report tools are highly susceptible to response bias which works to decrease validity. In regard to generalizability to the current study, Allen et al.’s study was conducted in Canada, not in the United States. Further, the population under investigation was higher education faculty not elementary level teachers. While clinical nursing faculty are still educators, they are teaching to a very different population of students than elementary school teachers.

In a study similar to that of Allen et al., Jha and Singh (2012) investigated the relationship between undergraduate faculty EI and teacher effectiveness. In their study, 250 faculty members from medical and engineering colleges in India completed measures to assess both EI and teacher effectiveness. Participants completed the Emotional Intelligence Scale, a self report tool based on Goldman’s theory, and the Teacher Effectiveness Scale, a self-report tool to measure teacher effectiveness. Students of participating faculty completed the Teacher Rating Scale in order to decrease the threat of response bias if only the teachers themselves reported on their effectiveness. Data analyses revealed a strong positive relationship between teacher EI and both measures of teacher effectiveness. Further, all EI subscales were significantly and positively related to both measures of teacher effectiveness, with emotional stability, managing relations, and self-motivation having the strongest relationships with both measures. Finally, regression analyses indicated that teacher EI can account for 42% of the variance in self-reported teacher effectiveness and 33% of the variance in student rated teacher effectiveness.
While results of Jha and Singh’s (2012) study provide further evidence that a positive relationship between teacher EI and student academic progress is feasible, there are also several limitations in this study that may affect its validity and generalizability. The Emotional Intelligence Scale utilized in this study, measures EI as defined by Goldman. Goldman’s theory on EI is a mixed/trait model and, as discussed previously, construct validity in mixed/trait models are questionable. Next, while the Teacher Rating Scale was completed by students of participating faculty members in order to decrease the response bias threat to validity, the rating scale is still based on a respondent’s perception of their teacher’s effectiveness, not actual effectiveness, and is also susceptible to response bias. Further, the definition of teacher effectiveness utilized in this study, had more to do with the teaching process rather than teaching outcomes, making a connection to the variable of academic progress in the current study less likely. Finally, while the study outlined the procedures for teacher participants, it did not outline how students of teacher participants were recruited or the procedure they followed to complete measurement tools. These unknowns raise serious questions regarding the validity of the student rating measurement tool and its data. In terms of generalizability, the same concerns as mentioned in the previously outlined studies are applicable. First, the study was conducted in India, not the United States, where the current study will be conducted. Next, the population under investigation was higher education faculty, not elementary level teachers.

**Teacher EI and student outcomes.** While there is some research investigating the relationship between teacher EI and teacher efficacy, which is outlined above, there is even less research that focuses on teacher EI and student outcomes. In 2012, Nizielski et al., investigated the relationship between teacher EI and student misconduct. Three hundred Syrian teachers from integrated elementary, middle, and high schools participated in the study and completed three
measures. The Wong and Law Emotional Intelligence Scale, a self-report measure based on Mayer and Salovey’s theory of EI, was completed to measure teacher EI. A shortened version of the disrespect subscale of the Pupil Behavior Patterns scale was completed to measure negative behavior patterns at the class level and the authors created a 10 item scale to rate teacher attention to student needs. Results indicated that there was a statistically significant negative relationship between overall teacher EI and student misconduct. Further, two subscales of EI, self emotion appraisal and regulation of emotion were also significantly and negatively related to student misconduct. While results also indicated that attention to student need mediates the relationship between teacher EI and student misconduct, Nizielski et al (2012) conclude, “we consider EI to be the more stable variable and consequently assume teacher EI to more strongly affect attention to student needs as well as student misconduct, rather than the other way around” (p.326).

Taken together, the results of Nizielski et al.’s (2012) study along with the previously discussed relationship between student behavior and academic achievement imply that a positive relationship between teacher EI and student academic progress is possible (McPherson et al., 2011). However, this study has similar limitations to all studies outlined on teacher EI thus far that may affect both validity and generalizibility. In regard to validity, this study utilizes self report measures to assess the variables under investigation. Nizielski et al. (2012) discuss this limitation and state that, “self-reports may be limited by self-enhancement, social desirability bias, and lack of accurate self-knowledge” (p.326). The authors recommend that future researchers should consider measuring variables utilizing more objective measures, such as ability assessments of EI. In regard to generalizability, while participants in this study were classroom teachers of elementary, middle, and high school level students, which is closer to the
proposed study than others discussed thus far, this study is still conducted in a different country than the proposed study.

A year after Nizielski et al.’s article was published, Jones et al. (2013) made the jump from behavior to academic achievement and argued that teacher social and emotional skills are essential to student academic success. In this theoretical article Jones et al. (2013) first outline and define ‘social and emotional skills’. They report that social and emotional skills encompass three main areas: emotional processes, social and interpersonal competencies, and cognitive regulation. They then discuss how social and emotional skills influence student outcomes through the impact they have on the quality of teacher-student relationships, the ability of the teacher to model these appropriate skills, and teacher classroom organization and management. Research in these three areas is cited to support their argument. Finally, they discuss the impact burnout and stress have on teachers and the role teacher EI may play in relation to these variables. They conclude that what is necessary in education is “a fundamental understanding that social and emotional competencies are not secondary to the mission of education, but concrete factors in the success of teachers, students, and schools” (Jones et al., 2013, p.65).

Jones et al. (2013) make a solid theoretical argument that teacher social and emotional skills are essential to student academic success. However, they do not present any empirical data that directly links these two variables. Further, while the definition of social and emotional skills that the authors provide overlaps substantially with the Mayer and Salovey’s definition of EI, there are some difference between the two. For example, Jones et al outline that the social and interpersonal competency area includes acting in pro-social ways which is more in line with a trait/mixed model of EI. Similarly, they assert that cognitive regulation includes maintaining attention and focus which is also more in line with a mixed/trait model of EI.
In 2014, Curci, Lanciano, and Soleti published an empirical article investigating the relationship between teacher EI and student academic achievement. In the study 12 math teachers from two Italian junior high schools completed the MSCEIT to measure EI as well as two sections of a previously established questionnaire on teacher motivations, emotions, and teaching strategies in order to measure teacher emotional states and teacher self efficacy. Students of teacher participants were also recruited and 338 of them participated. Student participants completed three self report scales to measure self-esteem, metacognitive beliefs, and self reports of ability. Science and math GPA was also utilized in order to measure actual student achievement. Results indicate that of all teacher characteristics of interest, only EI abilities were associated with student performance. In regard to student characteristics both self esteem and perceived ability were associated with student performance. The authors report that, “Overall, the present results supported our general expectation that teachers’ EI abilities interact with students’ self-esteem and self-reported abilities in promoting school success” (Curci et al., 2014, p.440).

While Curci et al.’s study is promising in that it did find a significant relationship between teacher EI abilities and student achievement, a few limitations make may decrease validity and generalizability of the study. The main concern is the very small sample size of 12 teacher participants which limits the validity of data analyses performed. Another concern is that the researchers only gather information on student GPA in math and science rather than in all academic areas to measure student performance. Further, they provide no rationale as to why they decided to measure student performance in this manner. Finally, the population in this study included Italian junior high school math teachers, which is unlikely to generalize to elementary classroom teachers in the United States.
Summary. Although there is an abundance of research on EI in schools, the majority of it focuses on student EI and various student outcomes. The research that has been conducted on teacher EI focuses mainly on its relationship to teacher outcomes. Some studies have investigated the relationship between teacher EI and teacher efficacy, which may impact student academic achievement. Overall, these studies suggest that as teacher EI increases teacher effectiveness also increases. However, more research in this area is necessary in order to more firmly establish this relationship and to generalize results to other populations. Very few studies have investigated the relationship between teacher EI and student outcomes. Although their results support a significant and positive relationship between teacher EI and student academic achievement, more research is necessary in this area. Further, no studies have investigated how student grade level or parent income level impact the relationship between teacher EI and student outcomes.

Figure 3. Summary of research on teacher emotional intelligence.
Conclusion

Research on EI has established that there are two models of EI, three main theories of EI, and three measurement tools that are utilized most often. The ability model of EI has been found to be more valid than the mixed/trait model as the mixed/trait model has unresolved issues surrounding construct validity. In regard to theories of EI, the Mayer and Salovey theory is the most widely researched ability model. While the MSCEIT is the most reliable and valid tool of the three main tools it appears to be utilized the least. This may be due to the fact that the MSCEIT is more difficult to administer in the sense that it has more questions, takes more time to complete, and is more costly to score. Therefore, the theory of EI that will be used in this research study is the Mayer and Salovey theory of EI and the tool that will be used to assess the variable of teacher EI will be the MSCEIT.

To date, research on teacher EI focuses mainly on its relationship with teacher outcomes such as job satisfaction and burnout. Although some studies have investigated the correlation between teacher EI and teacher efficacy, with the majority finding a significant positive relationship between the two variables, increased teacher efficacy does not necessarily mean increased student achievement. Further, such studies need to be replicated with other teacher populations in order in increase generalizability. Research regarding the relationship between teacher EI and student academic progress is just beginning to emerge and needs to be replicated in order to more firmly establish the relationship between the two variables.
Chapter III: Research Design

The following chapter outlines key aspects related to how this research study was designed and conducted. First, the research questions and expected hypothesis are outlined and justified based on theoretical and empirical evidence. Next, the specific research design selected for the study is discussed. Then, the population under investigation is defined and sampling procedures are explained. The collection of data, including instruments that were utilized and procedures that were followed, are also outlined. The procedures for data analysis are then discussed. Finally, issues surrounding validity, reliability, and generalizability as well as the protection of participants are addressed.

Research Questions

The purpose of this study was to evaluate the relationship between teacher EI and the academic progress of urban, elementary school students. The following overarching and sub-questions are addressed:

To what extent is teacher EI related to urban elementary school students’ academic progress?

1. To what extent does student grade level moderate the relationship between teacher EI and student academic progress?

2. To what extent does parent income level moderate the relationship between teacher EI and student academic progress?

The independent variable in this study was teacher EI and the dependent variable was student academic progress. The possible moderating variables were student grade level and parent income level. The following are the hypotheses for the overarching research question and related sub-questions:
Teacher EI will be significantly and positively correlated with student academic progress.

1. As student grade level increases, the strength of the relationship between teacher EI and student academic progress will decrease.

2. As parent income level increases, the strength of the relationship between teacher EI and student academic progress will decrease.

The overarching research question investigated how teacher EI was correlated with student academic progress. It was anticipated that there would be a significant and positive relationship between teacher EI and student academic progress, so that the higher a teachers’ EI the more academic progress his/her students would make throughout the school year. Social learning theory would suggest that observable behaviors related to teacher EI are picked up by students through observational learning and reinforced vicariously through such observations. Thus, social learning theory would predict that if a teacher has high EI, the skills and behaviors that students learn from him or her will be associated with a decrease in incidents of student misbehavior. In addition, the theory of operant conditioning would suggest that the frequency of these newly acquired skills and behaviors may be increased by the classroom teacher through reinforcement. Previous research would then suggest that decreased student misbehavior would be associated with an increase in academic progress (McPherson et al. 2011). As previously outlined, urban students often begin their educational careers with factors found to decrease academic achievement such as poverty, single-parent families, physical and sexual abuse, exposure to domestic violence, and parental drug and alcohol abuse (Conners et al, 2003; Coohey, Renner, Hua, Zhang, & Whitney, 2011; Lacour & Tissington, 2011; Suet-Ling, Dronkers, & Hampden-Thompson, 2003 ). Thus, investigating variables that may work against
these factors and are potentially associated with urban students’ increased academic progress was critical.

The first related sub-question investigated the influence of grade level on the relationship between teacher EI and student academic progress. Child development research outlines the decrease in teacher influence and the increase of peer influence as children progress through elementary school; while at the start of elementary school significant adults, such as teachers and parents, are central to the child’s social and emotional development, by the end of the elementary years, peers play the most significant role (Wood, 2007). Further, social learning theory outlines that during the attentional process of observational learning models that are more influential to the observer will receive increased attention. Taken together, it was expected that as student grade level increased, the strength of the relationship between teacher EI and student academic progress would decrease. Social learning theory would suggest that as children progress through elementary school, less attention will be given to teacher behaviors resulting in the strength of relationship between teacher EI and student academic progress to decrease. Understanding the impact student grade level has on the relationship between teacher EI and student academic progress could help establish recommendations as to what grade levels would benefit most from teachers with higher levels of EI or which grade levels would benefit most from having teachers with low EI engage in EI training programs.

The second related sub-question investigated the influence of parent income level on the relationship between teacher EI and student academic progress. Given the strong relationship between parent income and academic achievement (Lacour & Tissington, 2011), it was expected that as parent income level increased the relationship between teacher EI and student academic progress would decrease. The outlined theoretical framework would suggest that the relationship
between increased parental income and increased academic achievement occurs mainly because of positive skills and behaviors, which support academic success, that children learn from their parents and that their parents reinforce. Thus, for students whose parents have high income levels, the positive impact of a teacher with high levels of EI will likely be diminished, as these students have already learned the skills and behaviors that such teacher’s exhibit. Understanding the impact parent income level has on the relationship between teacher EI and academic progress could help establish recommendations as to what student populations would most benefit from teachers who have higher levels of EI or which student populations which most benefit from having teachers with low EI take part in EI training programs.

Research Design

Fraenkel, Wallen, and Hyun (2011) discuss all the possible quantitative designs, in depth, and report that correlational designs are intended to investigate a possible relationship between two variables without manipulating the data. Since this study investigated a possible relationship between teacher EI and student academic progress by assessing the levels of those variables, it lends itself well to a correlational design. Further evidence that a correlational design is most appropriate for this study lies in the design’s purpose. Fraenkel, Wallen, and Hyun (2011) outline that, “a major purpose of correlational research is to clarify our understanding of important phenomena by identifying relationships among variables” (p. 332). The current research questions are aligned with that purpose, as the goal is to better understand urban student academic progress and investigate a relationship between such progress and teacher EI, student grade level, and parent income level.

While there are both advantages and disadvantages that a quantitative correlational design provided to this study, the advantages outweighed the disadvantages. In regard to
advantages, the design is efficient (Fraenkel, Wallen & Hyun, 2011). It allows for quick and easy collection of large amounts of data on both teacher EI and student academic progress. The efficiency of the design decreases sampling error and increases statistical power, making it more likely for a true relationship between variables to be discovered (Vogt, 2007). Also, it was easy to guarantee confidentiality when assessing teacher EI through this type of design (Muijs, 2011). Given that this study examined how a specific teacher characteristic, teacher EI, was related to student academic progress, teachers were likely more willing to participate since they were assured that their scores were only known to this researcher. This may have also helped them to be more truthful in their survey responses. In regard to disadvantages, the correlational design does not allow for causality to be established (Fraenkel, Wallen & Hyun, 2011). While establishing causation between teacher EI and student academic progress would have been helpful, it was extremely important, maybe even more so, to first establish if a relationship between the two variables exists at all, especially since information on the relationship between these two variables is so scarce. Another disadvantage to a correlational design is that it is possible for another variable, apart from the dependent and independent variables, to explain the established relationship (Fraenkel, Wallen & Hyun, 2011). While it is highly likely that numerous variables contribute to student academic progress and also possible that another variable could explain a relationship between teacher EI and student academic progress, an important first step was to establish if there was in fact a relationship between teacher EI and student academic progress, as outlined by Fraenkel, Wallen and Hyun (2011). Future studies can then investigate the relative importance of teacher EI to student academic progress as compared to other variables or if another variable explains the established relationship. Despite the
limitations of a quantitative correlational research design, it offers numerous advantages and was the most appropriate design to utilize in this study based on the proposed research questions.

**Population and Sampling**

An urban, public school district in Massachusetts was selected as the site for this study. The selected district was chosen for three main reasons. First, the district was within a reasonable commute for this investigator, which allowed for ease of student record review. Second, this investigator was granted permission to conduct the research within the district. Third, the demographics of student’s within the district are consistent with those in typical urban schools.

Rothman (2007) outlines that urban schools are facing increased numbers of students with specific characteristics. He identifies these student characteristics as ethnic diversity, requiring special needs services, having a first language other than English, and being from low income homes. Although when the overall percentage of these characteristics are investigated within the selected district, they are similar to the overall percentages in the home state of Massachusetts as well as the percentages within the United States, the rate that these characteristics have increased over the past 20 years within the selected district is much higher than in the home state of Massachusetts. It is important to note that during this same time frame, the student population in the selected district decreased, while the student population in Massachusetts increased. Overall, this translates into the selected district having to make adjustments to accommodate a population that has changed at a faster rate than is typical within its home state regarding the student characteristics Rothman (2007) outlines are increasing in the typical urban school district.

Table 1
**Percentage of Student Population Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Non-white</th>
<th>Special Needs</th>
<th>Home language not English</th>
<th>Low income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected district</td>
<td>23.4%</td>
<td>17.9%</td>
<td>13.3%</td>
<td>30.8%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>32.0%</td>
<td>17%</td>
<td>16.3%</td>
<td>34.2%</td>
</tr>
<tr>
<td>United States</td>
<td>27.6%</td>
<td>13.0%</td>
<td>15.7%</td>
<td>48.0%</td>
</tr>
</tbody>
</table>

*Note. Selected district and Massachusetts non-white student percentage is from Massachusetts Department of Elementary and Secondary Education (2014a); selected district and Massachusetts special need student, home language not English student, and low income student percentage is from Massachusetts Department of Elementary and Secondary Education (2014b); United States non-white student percentage is from Hixson, Helper, and Kim (2011); United States special need student percentage is from U.S. Department of Education, National Center for Education Statistics (2013); United States home language not English student percentage is from Ryan (2013); the United States low income student percentage is from Southern Education Foundation (2013). All data is based on the most recently published national data for such categories, taken during the 2010-2011 school year.*

**Table 2**

*Population Characteristics’ Increase in Percentage from 1994 to 2014*

<table>
<thead>
<tr>
<th></th>
<th>Non-white</th>
<th>Special Needs</th>
<th>Home language not English</th>
<th>Low income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected district</td>
<td>15.5</td>
<td>7.9</td>
<td>7.5</td>
<td>17.8</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>14.4</td>
<td>0</td>
<td>5.8</td>
<td>14.2</td>
</tr>
</tbody>
</table>

*Note. Selected district and Massachusetts non-white student percentage increase was calculated using data from Massachusetts Department of Elementary and Secondary Education (2014a); selected district and Massachusetts special need student, home language not English student, and low income student percentage increase was calculated using data from Massachusetts Department of Elementary and Secondary Education (2014b)*

The target population in this study was all regular education and inclusion classroom teachers in grades two through four within the selected district. During the 2014 – 2015 school year, the district employed 390 teachers, with 163 of them teaching pre-kindergarten through
fifth grade (Department of Elementary and Secondary Education, 2014c). Teacher characteristics within this study varied as is typical within the teaching profession. However, the characteristic of interest, teacher EI, was collected through the completion of a pre-established measure to assess EI.

In order to select participants from the target population, convenience sampling was utilized. An invitation email (see Appendix A) was sent out to 53 teachers in the district who met participation criteria. This type of sampling allowed for access to the largest number of participants within the target population. In order to be eligible to participate, teachers had to be either regular education or inclusion classroom teachers and teach a grade from two through four. In order to increase participation rates, the invitation email emphasized that teachers who participated would receive a five dollar Dunkin Donuts gift card and be entered into a drawing for a $100 pre paid credit cards upon completion of the assessment by the due date. The email instructed teachers who were interested in participating to first review an attached participant informational sheet and then review an attached electronic informed consent document. The informed consent document contained a link to the electronic version of the EI assessment. This researcher did not have a professional relationship with any classroom teachers in the district, alleviating the threat of researcher interpretation bias.

A priori power analysis of the necessary teacher sample size for the study was conducted. It yielded a desired sample size of 47 teacher participants in order to provide for a 95% confidence level with a 5% confidence interval. For increased confidence, a sample size of 50 participants was necessary and would achieve a 99% confidence level with a 5% confidence interval. Finally, in order to meet the minimum confidence level of 90% with a 5% confidence interval, a sample size of 45 teacher participants was necessary.
The inclusion of students was based on classroom teachers who decided to participate in the study. During the 2014 – 2015 school year, the district educated 5,927 students; however, more pertinent to this study, there were 1,319 students from grade two through grade four (Massachusetts Department of Elementary and Secondary Education, 2014d). With permission from the district superintendent and district elementary school principals (see Appendix B), data was collected for all students whose classroom teachers participated in the study. Specifically, grade level, parent income level, and student scores on district ELA assessments from both the beginning and end of the 2014-2015 school year were accessed through record review. The assessment scores were then used to calculate the dependent variable, academic progress score, for each student. The process to calculate this variable is described in the next section. Grade level and parent income level were collected as potential moderating variables.

A priori power analysis was also conducted to calculate the necessary student sample size for the study. It yielded a desired sample size of 298 included students in order to provide for a 95% confidence level with a 5% confidence interval. For increased confidence, a sample size of 442 students was necessary and would achieve a 99% confidence level with a 5% confidence interval. Finally, in order to meet the minimum confidence level of 90% with a 5% confidence interval, a sample size of 225 students was necessary.

Data Collection

The research questions in this study contain four variables upon which data was collected. Ordinal data, or data that can be rank ordered but does not have equal intervals, was collected for the potential moderating variable of parent income level (Fraenkel, Wallen & Hyun, 2011). Parent income level was classified as low, middle, or high. Interval data, or data that can be rank ordered and has equal intervals, was collected for the dependent variable of student
academic progress, the independent variable of teacher EI, and the potential moderating variable of grade level. Student academic progress was computed by calculating the difference in percentile rankings from end of year assessment scores and beginning of year assessment scores. A standardized score for teacher EI was attained through the use of the teacher EI assessment instrument. Student grade level was coded two through four, equivalent with the student’s grade level during the 2014 – 2015 school year. In order to collect the necessary data, this researcher utilized a previously published instrument to collect data on teacher EI and record review to collect data for student academic progress, parent income level, and student grade level.

**Instruments.** Teacher participants completed the MSCEIT in order to assess the independent variable of teacher EI. Since this instrument is standardized with an average score of 100 and a standard deviation of 15, standardized scores, rather than raw scores or percentiles, were utilized as each participant’s data for the variable of teacher EI (Leung, n.d.). The MSCEIT is comprised of 141 questions, takes an average of 30 to 45 minutes to complete, and is designed to be taken by individuals aged 17 and older (Consortium for Research on Emotional Intelligence in Organizations, n.d.). Unlike most EI assessment tools, which derive scores through self-report, this test is an ability based assessment; that is, it evaluates answers based on predetermined, norm referenced correctness (University of New Hampshire, n.d.). The assessment of EI ability rather than perception is important because “actual skill is very different (i.e., uncorrelated or minimally correlated) with self-judged skills in this area” (University of New Hampshire, n.d., para. 2). Sample questions from the instrument are outlined in Appendix C.

Several different scores are determined through completion of the MSCEIT (Consortium for Research on Emotional Intelligence in Organizations, n.d). There are four ‘branch scores’ which are aligned with the main abilities of EI: perceiving emotion, understanding emotion,
managing emotion, and facilitating thought. Further, the branch scores are clustered to form two area scores; experiential EI is comprised of perceiving emotion and facilitating thought while strategic EI is comprised of understanding emotion and managing emotion. Finally, an overall EI score is also calculated.

The MSCEIT has been found to be both a reliable and valid instrument. Reliability refers to how consistent an instrument’s scores are as well as the extent to which the instrument is free of random error (Fraenkel, Wallen & Hyun, 2011; Muijs, 2011). Fraenkel, Wallen, and Hyun (2011) outline that, for research purposes, reliability should be no less than .70. The selected instrument’s split-half, internal consistency for the overall EI score has been determined to range from .91 to .93 (Mayer, Salovey & Caruso, 2004). Internal consistency outcomes for area scores are also impressive at .90 for experiential EI and .86 to .88 for strategic EI. Branch scores internal consistencies are also solid, ranging from .76 to .91. Further, test-retest reliability of the instrument is .86. Validity refers to the extent to which an instrument measures the construct it is intended to measure (Muijs, 2011). Although there are several instruments that assess EI, the selected instrument is the only one that is intended to measure actual ability, not self perceived ability, making it difficult to assess concurrent criterion-related validity at this time (Mayer, Salovey, & Caruso, 2004). However, predictive criterion-related validity has been established. Other forms of validity have also been assessed and established, including content validity, factorial validity, and discriminate validity. Overall, this instrument was both adequate and appropriate to assess the variable of teacher EI as it is standardized, measures EI based on actual ability, and is both valid and reliable.

Data to calculate student academic progress was collected by reviewing school records for oral reading fluency (ORF) scores on the Dynamic Indicators of Basic Early Literacy Skills
(DIBLES) assessment. Specifically, beginning and end of school year 2014-2015 ORF scores were collected for all students whose classroom teachers participated in the study. Collected scores were transformed into pre-established percentile scores as outlined by the DIBLES assessment technical manuals and which corresponded to the student's grade level and testing time period (beginning of year or end of year). Differences between the two ORF percentile scores were then calculated in order to attain an overall academic progress score.

The DIBLES ORF assessment is a standardized tool and is designed for use with students from the middle of first through the sixth grade (University of Oregon, n.d.). The assessment is individually administered and measures both the accuracy and fluency of connected text. Scores are based on the number of words read correctly after students read a passage out loud to a trained assessor for one minute. Criterion-related validity of the DIBLES ORF assessment ranges from .52 to .91. Test-retest reliability ranges from .92 to .97. Similarly, reliability of different reading passages within the same grade level range from .89 to .94.

Data from the DIBLES ORF assessment was selected to calculate the variable of student academic progress for several reasons. First, there is a statically significant and positive relationship between the growth rate in ORF and later reading comprehension (Young-Suk, Petscher, Schatschneider, & Foorman, 2010). Similarly, ORF is significantly and positively correlated with overall reading achievement (Mostert & Glasswell, 2012; Schilling, Carlisle, Scott, & Ji, 2007). Further, reading achievement is highly correlated with overall academic achievement (Arnold & Doctoroff, 2003; Crawford, Tindal, & Steiber, 2001; Entwisle, Alexander, & Olson, 2003; Luster & McAdoo, 1996). Therefore, based on the relationship between ORF and reading achievement as well as reading achievement and overall academic
achievement, using ORF scores to calculate student academic progress was appropriate for this study.

A record review was performed in order to attain data for the two moderating variables of student grade level and parent income. Student grade level was coded from two to four and aligned with the student’s grade level during the 2014 – 2015 school year. Parent income level was categorized as low, middle, or high. If students received free school lunches, parent income was coded as low. If students received reduced price lunches, parent income was coded as middle. If students did not receive any type of state subsidization for lunches, parent income was coded as high.

**Procedures.** On May 7, 2015 an invitation email (see Appendix A) was sent to all 53 teachers who met participation criteria. The invitation email briefly described the study and outlined issues surrounding participant confidentiality. In order to motivate teachers to participate, the invitation email also outlined that teachers who completed the questionnaire by the due date of June 25, 2015 would receive a $5.00 gift card to Dunkin Donuts and be entered into a drawing for a $100.00 pre-paid credit card. Teachers who were interested in participating were instructed to review two attached PDF documents. The first document, the participant informational sheet, contained a more in depth description of the study, outlined research questions and hypotheses, and provided information regarding data collection and storage procedures, participant confidentiality, opt-out information, and researcher contact information. The second attached document was the informed consent which contained a link to the electronic version of the MSCEIT. In order to help increase participation, reminder emails were sent to all eligible participants one, three, five, six, and seven weeks after invitation emails were sent. The
emails reminded invited teachers of the study incentives if they completed the questionnaire by the due date.

There were two notable changes that invited teachers were made aware of during the collection of teacher participant data. On May 14, 2015, along with the one week reminder email, invited teachers were made aware of a change that was made to participation incentives in hopes of raising the response rate. It was outlined that instead of the originally outlined incentives, teachers who completed the questionnaire by the due date would receive a $10.00 gift card to Dunkin Donuts and be entered into two drawings, each for a $250.00 pre-paid credit card. Then on June 26, 2015, all invited teachers were notified via email that the deadline to complete the questionnaire and receive participation incentives was extended to July 12, 2015. This change was also made to help increase teacher participation rates.

In August of 2015, after the collection of teacher participant data was complete, building principals were contacted via email and a record review of all students whose teacher’s had participated in the study was requested. Specifically, review of records relating to included student’s gender, grade level, lunch status, and 2014 – 2015 DIBLES assessment scores were requested. Principals referred this researcher to contact various school/district staff, such as secretaries and literacy coaches, to assist in gathering the necessary records for review. Relevant records were emailed or mailed to this researcher for review. Specifically, student gender was collected and recorded for demographic information. Student lunch status was collected and recorded in order to assess the potential moderating variable of parent income level. Data for the potential moderating variable of student grade level was also collected and recorded. Finally, beginning and end of year DIBLES ORF scores (completed in the fall of 2014 and the spring of
were collected, recorded, and utilized to calculate the dependent variable of student academic progress.

**Data Analysis**

After data for all variables of interest were collected, they were entered into IBM’s Statistical Package for Social Sciences Software version 22, commonly referred to as SPSS. Next, data was visually inspected and descriptive statistics were calculated for all variables in order to assist in identifying missing pieces of data within the set as well as to identify data that was entered incorrectly. Frequency distributions were utilized to provide demographic information about teacher participants and included students that needed to be reported, such as the percentage of included students from low, middle, and high income homes, the percentage of teachers and students at each grade level, and the percentage of included students who were male and female.

The type of research question as well as the type of data collected helped to determine the most appropriate statistical analysis. The over-reaching research question in this study aimed to examine if there was a relationship between teacher EI and student academic progress. As previously outlined, both teacher EI and student academic progress were coded as continuous variables. Based on this, a Pearson’s r test of statistical significance was the most appropriate analysis to answer the over-reaching research question, as the Pearson’s r is intended to examine the relationship between two continuous variables (Muijs, 2011). While a Pearson’s r was most appropriate to answer the over-reaching research question, it was not appropriate to help answer the two related sub-questions, which looked to examine if, and to what extent, student grade level and parent income level moderated the impact of teacher EI on student academic progress. In order to answer these questions, two separate moderation analyses were most appropriate. A
moderation analysis is a type of multiple regression that examines the impact of a potential moderating variable, of any data type, on the relationship between an independent variable, of any data type, and a continuous, dependent variable (Hayes, 2013).

Before parametric tests, such as the Pearson’s r and moderation analyses, can be utilized, certain assumptions regarding data need to be met. If assumptions are not met, validity and power of the analyses can be compromised (Hayes, 2013). The Pearson’s r analysis assumes that both the dependent and independent variables are measured on a continuous scale, that there are no significant outliers, that data is normally distributed, and that there is a linear relationship between variables. As previously outlined, data for both teacher EI and student academic progress were measured on a continuous scale. In order to identify outliers, boxplots were run for the variables of teacher EI and student academic progress. Outliers are typically defined as variables that fall three or more standard deviations above or below the mean and are important to consider as they can greatly influence the results of any statistical analysis based on a variable’s mean and/or standard deviation (Vogt, 2007). Identified outliers were excluded from statistical analyses. Normal distribution of the independent variable, teacher EI, and the dependent variable, student academic progress was assessed in two ways. Histograms for both variables were created and visually inspected for a shape similar to that of a normal bell curve. The Kolmogorov-Smirnov test of normality was also performed. A linear relationship between the variables of teacher EI and student academic progress was assessed through the creation and visual inspection of a scatter plot diagram as well as by calculating the number of large residuals (defined as three standard deviations above or below the mean). The assumption of a linear relationship cannot be established if the number of large residuals accounts for 10% or more of the overall cases in the data set (Muijs, 2011). Vogt (2007) outlines that parametric analysis
should be utilized only if all assumptions are met; if assumptions are not met, data should be transformed or non-parametric analyses, such as Spearman’s Rho, should be utilized.

The next analysis, moderation analysis, assumes no significant outliers of continuous variables, a normal data distribution of continuous variables, a linear relationship between continuous variables, and independence of predictor variables or that multicollinearity is not occurring between any predictor variables. Since neither of the moderating variables were continuous, the only additional assumption that needed to be checked was to ensure the independence of predictor variables. In order to do this tolerance values were calculated. Tolerance values of .20 or greater indicate independence of variables (Vogt, 2007). Again, Vogt (2007) stresses that all assumptions should be met in order to utilize parametric analysis. If all assumptions are not met it is recommended that data be transformed or that non-parametric analyses be utilized (Vogt, 2007).

After assumption checking was completed, the outlined statistical analyses were run to address each research question. Muijs (2011) discusses the Pearson’s r analysis and outlines that the resulting correlation coefficient will indicate the direction and strength of the relationship between variables. The correlation coefficient can be either negative or positive. A positive Pearson’s r correlation coefficient indicates that as teacher EI increases, student academic progress also increases. A negative coefficient establishes that at teacher EI increases, student academic progress decreases. The coefficient ranges from 1 to -1 and indicates the strength of the relationship. The strength can be weak (<-+/.1), modest (+/-1 through <+/- .3), moderate (+/- .3 through <+/- .5), strong (+/- .5 through <+/- .8), or very strong (> or = <+/- .8). Zero would indicate no relationship. The analysis also provides a significance level. A significance level of .05 or below indicates that the relationship between the variables is statistically significant.
Therefore, a high positive correlation coefficient with a significance level of .05 or below, would indicate that teacher EI does significantly impact student academic progress.

Hayes (2013) outlines that a moderation analysis will calculate a significance value for the interaction variable, defined as the interaction between the potential moderating variable and the independent variable. If the significance value of the interaction variable is 0.05 or below, the potential moderating variable does in fact moderate the relationship between the independent and dependent variables. In regard to student grade level, an interaction variable with a significance value of 0.05 or below in a moderation analysis would indicate that grade level does moderate the relationship between teacher EI and student academic progress. Similarly, an interaction variable with a significance value of 0.05 or below in a moderation analysis for parent income level would indicate that parent income level does moderate the relationship between teacher EI and student academic progress.

Hayes (2013) explains that a moderation analysis will also assist in interpreting the way a moderating variable impacts the relationship between the independent and dependent variable through a ‘Conditional Effects’ output table. The table provides regression coefficients and significance values related to the effect of the moderating variable on the relationship between the dependent and independent variables, at various levels of the moderating variable. Regression coefficients range from 1 to -1 and indicate the effect size of the moderating variable on the relationship. A significance value of .05 or below indicates that the moderating variable significantly affects the relationship between the independent and dependent variables at that level. Thus, a significance value of .05 or below at the lower levels that increases to a level above .05 at higher levels, along with a positive coefficient closer to 1 at the lower levels that decreases to a value closer to zero at higher levels would indicate that grade level has a
significant, positive effect on the relationship between teacher EI and student academic progress at the lower grade levels, but an insignificant slightly positive effect at the higher grade levels. The same results, a significance value of .05 or below at the lower levels that increases to a level above .05 at higher levels along with a coefficient closer to 1 at the lower levels that decreases to a value closer to zero at higher levels, would also indicate that parental income level has a significant, positive effect on the relationship between teacher EI and student academic progress at lower parental income levels that progresses to an insignificant, slightly positive effect at higher parental income levels.

**Validity, Reliability, and Generalizability**

*Validity and reliability.* Validity and reliability are closely related concepts. Validity refers to the extent that a researcher is measuring what is intended to be measured and reliability refers to the consistency of measurement (Fraenkel, Wallen, & Hyun, 2011). One main area of concern in regard to validity and reliability surrounds the instruments utilized to collect data. In order to decrease threats to validity and reliability regarding instrumentation, pre-established instruments, that had consistently been found valid and reliable, were utilized to collect data for both the dependent and independent variable, as previously discussed. While instrument selection is important to overall validity and reliability, threats in other areas of this study were also carefully considered and addressed.

Fraenkel, Wallen, and Hyun (2011) discuss several threats to validity and reliability that are inherent to correlational research designs. The first is selection bias and occurs when the selection method skews participant characteristics in some way that is pertinent to the data that will be collected. In order to reduce this threat, all individuals from the target population who met participation criteria were invited to participate in the study. A related threat is that it is
possible for another variable, apart from the independent variable, to explain the relationship between the independent and dependent variable. While it is highly likely that numerous variables contribute to student academic progress and it is possible that another variable may explain a relationship between teacher EI and student academic progress, Fraenkel, Wallen and Hyun (2011) report that an important first step is to establish that there is in fact a relationship at all. Future studies can then investigate the relative importance of teacher EI to student academic progress as compared to other variables or if another variable explains the established relationship.

A mortality threat, or loss of participants over the course of a study, is another concern that should be considered (Fraenkel, Wallen, & Hyun, 2011). In order to minimize this threat, no long term participation was required of teacher participants in the proposed study; teacher participants only needed to complete a one-time EI assessment. Further, teacher participants were informed that they would receive a Dunkin Donuts gift card and be entered into a drawing for a pre paid credit card upon completion of the survey by the deadline. Included students, on the other hand, did need to complete an assessment at two separate times. While this assessment was required to occur by the district under investigation, mortality threat was still a concern if included students left the district, transferred schools, or even transferred classes. In this situation, such data was removed from the study. Both teacher participants and included students attrition rates were reported.

Location threat occurs when the location of data collection affects the results of a study in some manner (Fraenkel, Wallen, & Hyun, 2011). Fraenkel, Wallen, and Hyun (2011) suggest that in order to reduce location threat, the location of data collection should be held constant. If a constant location is not possible, researchers should ensure that the different locations will not
jeopardize the results. All included student data collection took place in the student’s school, minimizing location threat for the student academic progress variable. In regard to the teacher EI variable, teacher participants were able to complete the EI assessment at the location of their preference. Since ability based EI has been found to be stable concept, it should not be impacted by location threat.

Researcher or data collector bias can affect internal validity and was also considered (Fraenkel, Wallen, & Hyun, 2011). As this researcher’s background is in psychology, or the study of the mind and behavior, there is an understanding that emotions and thought processes often have a significant impact on overt behaviors and interpersonal relationships (American Psychological Association, 2014). Thus, this researcher’s view of the problem is biased and there is an expectation, or hope, that teacher EI significantly and positively impacts student academic progress. However, this bias posed minimal threat to the overall validity of the study as objective, rather than subjective, measures were used to assess all variables and no interpretation of raw data was required of this researcher. Further, in order to reduce any possible threat to external validity during the writing of the discussion and interpretation of findings section, this researcher was mindful of the outlined bias and attempted to stay as objective as possible. Another issue concerning bias was the relationship this researcher already had or established with participants throughout the study. However, as previously stated, this researcher did not have a professional or personal relationship with any classroom teacher in the selected district and did not establish any relationships throughout the course of the study as very little communication with participants was required (communication that did occur was all through email).
Generalizability. Generalizability refers to the extent results of a study relate to, or are true for, the target population or overall population under investigation (Muijs, 2011).

Participants in the study were selected from an urban school district in Massachusetts. It is likely that results will generalize to other urban school districts in Massachusetts, but may not generalize to urban school districts in other states. It will also be difficult to generalize findings to any suburban or rural systems. Future studies could look to replicate results in urban districts in other states as well as in suburban and rural districts, nationwide. Further, the study investigated the relationship between teacher EI and student academic progress at the elementary level. Therefore, it is unlikely results would generalize to the middle or high school levels. Future studies could also investigate a possible relationship at such grade levels.

Protection of Human Subjects

During any study, it is imperative to ensure participant well-being and address issues regarding confidentiality (Fraenkel, Wallen, & Hyun, 2011). Thus, every effort was made to ensure that participants did not endure any harm and, due to the sensitive nature of EI, that their confidentiality was protected. Since it was anticipated that some potential participants may hesitate to participate out of suspicion that their results would be shared with district administration, confidentiality was initially addressed in the invitation email sent to all potential participants. The invitation email emphasized that participant scores would be kept confidential and not be shared with anyone, specifically including district administrators. Confidentiality was addressed again, at a more in depth level, in the participant informational sheet and on the informed consent. All aspects of confidentiality that Creswell (2009) identifies were outlined on the informed consent. Participants were assured that their surveys would be kept confidential, with only this researcher having access to their data. It was also outlined that participant names
would not be disclosed on the final research report, in any form. Further, participants were assured that individual school names as well as the district name would be withheld, utilizing instead, general descriptors such as, ‘an urban elementary school’ or ‘an urban, public school district in Massachusetts’. Participants were also assured that they could withdraw from the study at any time and for any reason. Finally, the informed consent outlined that participant data would be stored in a locked filing cabinet and that five years after the last piece of data was received by this researcher, all data would be shredded and discarded.

A few additional ethical issues were considered. In order to respect the research site and minimize disruptions, as described by Creswell (2102), permission to conduct the study within the district was attained from the district superintendent and all elementary school principals. Fraenkel, Wallen, and Hyun (2011) discuss ethical concerns regarding the use of deception with participants. However, deception was not used at any point during this study; participants were fully and truthfully informed of this study’s variables and overall hypothesis. Further, participants were encouraged to contact this researcher via email or by phone, at any point, if there were questions or concerns. Finally, all protocols were compliant with and approved by the Office of Institutional Review Board (IRB) at Northeastern University (see Appendix D).

Summary

Each of this study’s hypotheses were informed through the meticulous and thoughtful review of the selected theoretical framework and relevant previous research. Based on the outlined research questions and their hypotheses, a quantitative correlational research design was found to be most appropriate. While conducting the study, convenience sampling was utilized in order to select teacher participants from the target population of regular education and inclusion classroom teachers in grades two through four within the selected study site of an urban, public
school district in Massachusetts. All potential teacher participants were sent an invitation email which briefly described the study, outlined issues surrounding participant confidentiality, and described study incentives for participation. Teachers who were interested in participating were instructed to review two attached PDF documents: a participant informational sheet which contained more in depth information regarding the study and an informed consent document which contained a link to the electronic version of the MSCEIT, an EI assessment. The MSCEIT is a standardized, ability based assessment which was utilized to collect data on teacher emotional intelligence. In order to calculate student academic progress, beginning of year and end of year DIBLES ORF scores were collected from all students whose classroom teachers decided to participate in the study. Data for all other study variables were collected through record review. After data for all variables of interest were collected, data was cleansed, assumptions were checked, and selected statistical analyses were run. While both designing and conducting the study, threats to validity, reliability, and generalizability were considered and steps were taken to reduce such threats. Finally, every effort was made to ensure that teacher participants and included students did not endure any harm and, due to the sensitive nature of EI, that their confidentiality was protected.
Chapter IV: Research Findings

The purpose of this study was to investigate the relationship between teacher EI and the academic progress of urban, elementary school students as well as to investigate if parent income level or student grade level moderated the impact of that relationship. To help answer these questions, EI scores were collected from teacher participants in the study through the administration of the MSCEIT and student progress scores were calculated after record review of included student’s DIBLES ORF data at the beginning and end of the 2014 – 2015 school year. A Pearson’s r correlation analysis was completed in order to investigate the relationship between teacher EI and student academic progress while two moderation analyses were conducted to investigate the impact of parent income and student grade level on the relationship between teacher EI and student academic progress.

In this chapter research findings are reported and interpreted. First, steps to cleanse data are described and results of data cleansing are outlined. Then, results of assumption checking and necessary steps to transform data are outlined, followed by the reporting of demographic information related to teacher participants and included students. Next, pertinent descriptive statistics, such as central tendency and spread, for teacher EI scores and student academic progress scores are outlined. Finally, findings from the Pearson’s r correlation and moderation analyses are reported and interpreted.

Data Cleansing

Several steps were taken in order to properly cleanse the data after it was entered into SPSS. First, data for each variable was reviewed to ensure there were no missing pieces of data and that acceptable values for the respective variable had been entered. Next, frequency distributions were calculated to further assist in identifying missing data or data that was entered
incorrectly. In total there were 346 units of data (equivalent to the number of included students) entered into SPSS. Both data review and frequency distributions indicated that for the variables of teacher EI, student grade level, and student gender, no pieces of data were missing or entered incorrectly. However, for the variables of parent income level and student academic progress, there were missing pieces of data.

The variable of student progress was missing seven pieces of data. These missing pieces of data were due to the mortality of included students (mortality rate of 2.02%). Such students took the beginning of year assessment, but either left the district, school, or classroom before the end of year assessment took place. Therefore, such student’s progress scores were not able to be calculated. Since these missing pieces of data were on dependent variable, which was utilized in all performed analyses, the seven units with missing student progress scores were removed from the data set. Removing those units brought the unit count in SPSS down to 339 units.

The variable of parent income level was missing 125 pieces of data. These pieces of data were missing due to two school principals who could not retrieve records of such data. Since the variable of parent income level was a potential moderating variable and only used in one analysis in the study, these units were not removed from the data set. Rather, the units missing this data were not included in the moderation analysis which investigated the potential moderating variable of parent income level. It is important to note that no units were removed from this study due to the scores attained on the teacher EI assessment calculation of student progress.

Assumption Checking

As discussed in Chapter 3, before parametric tests, such as the Pearson’s r and moderation analyses, can be utilized, certain assumptions regarding data need to be met. If assumptions are not met and parametric tests are utilized, validity and power of the analyses are
compromised (Hayes, 2013). If assumptions are not met, non-parametric analyses should be utilized. If the utilization of parametric analyses is still desired, data should be successfully transformed, in that the transformed data meets all assumptions. If data transformation is not successful, non-parametric analyses should be utilized. The results of assumption checking are outlined below and discussed in more detail in Appendix E.

**Pearson’s r correlation analysis.** The variables of teacher EI and student academic progress both met the assumption that the dependent and independent variables be measured on a continuous scale. Next, boxplots created to identify outliers within the data set, indicated that while there were no outliers within the variable of teacher EI, there were 11 outliers within the variable of student academic progress (see Appendix E, Figure E1 and E2). Identified outliers were removed from the data set bringing the unit count in SPSS to 328. Then, a normal distribution of data was checked through the creation and visual inspection of histograms for each variable (see Appendix E, Figures E3 and E4) as well as the calculation of significance values on the Kolmogorov-Smirnov test of normality (see Appendix E, Figure E5). Results indicated that both variables violated the assumption of normality. Therefore, data transformation was necessary if parametric analyses were going to be utilized (Hayes, 2013). In order to have a more complete transformation of data, the 11 previously identified outliers were added back to the data set bringing the unit count in SPSS back to 339. Data was transformed through a two-step approach for transforming continuous variables to normal, as described by Templeton (2011). For each variable, the first step in the transformation was to transform the data into a percentile rank in order to create uniformly distributed probabilities. In the second step, an inverse normal transformation was applied to the data which created a variable consisting of normally distributed z-scores.
After data was transformed, assumption checking was started over to assess if the data transformation was successful. The variables of transformed teacher EI and transformed student academic progress still met the assumption that the dependent and independent variables be measured on a continuous scale as their method of measurement was not manipulated. Boxplots were again created to identify outliers within the data set (see Appendix E, Figure E6). Boxplots indicated that while there were no outliers within the variable of transformed teacher EI, there were three outliers within the variable of transformed student academic progress. The three units with identified outliers were removed from the data set bringing the unit count in SPSS to 336. Next, histograms were visually inspected (see Appendix E, Figures E8 and E9) and significance values were calculated for the Kolmogorov-Smirnov test of normality (see Addendix E, Figure E10) in order to establish that the assumption of a normal distribution of data was not violated. Finally, a linear relationship between the variables was ascertained through the visual inspection of a scatter plot diagram (see Appendix E, Figure E11) indicating a linear relationship as well as through the calculation of residuals indicating that there were no residuals occurring three standard deviations above or below the mean.

**Moderation analysis.** A moderation analysis assumes no significant outliers on any continuous variables, a normal data distribution of continuous variables, a linear relationship between continuous variables, and independence of predictor variables. Since the variables of student grade level and parent income level were not continuous, the assumptions of no significant outliers, a normal data distribution, and a linear relationship did not need to be checked for these variables. Further, the continuous variables of transformed teacher EI and transformed student academic progress were already checked for the assumptions of no significant outliers, a normal data distribution of, and a linear relationship between variables
during the assumption checking for the Pearson’s r correlation analysis. As outlined above, none of those three assumptions were found to be violated. In regard to the assumption of independence of predictor variables, tolerance values were calculated (see Appendix E, Figure E12). All tolerance values were greater than 0.20 indicating that the assumption of independence of predictor variables was not violated (Vogt, 2007).

**Demographics**

**Teacher participants.** Teacher participants (N = 16) in the study were regular or inclusion classroom teachers who completed the MSCEIT between May 7, 2015 and July 12, 2015. Teacher participants were all female and were from four of the five elementary school sites in the selected urban school district in Massachusetts (31.3% from schools one through three, 6.3% from school four, and 0% from school five). Further, 50% of teacher participants taught grade two, 25% taught grade three, and 25% taught grade four. In regard to ethnicity, 93.8% of teacher participants identified as white/Caucasian and 6.3% of teacher participants identified as Asian. Finally, in terms of age, teacher participants ranged between 24 and 51 years old, with a mean age of 36.6 years (S.D. = 7.9). Of note, one teacher participant chose not to disclose her age.

**Included students.** After data cleansing and assumption checking, there were 336 included students (50.3% male and 49.7% female) in the data set from four out of five elementary school sites in the selected urban school district in Massachusetts (34.2% from school one, 31.8% from school two, 28.6% from school three, 5.5% from school four, and 0% from school five). During the 2014 – 2015 school year 49.4% of included students were in the 2nd grade while 28.6% were in 3rd grade and 22% were in 4th grade. In regard to parent income levels, 39.3% of included students were deemed to have high parent income levels, 3% had
middle parent income levels, 19.3% had low parent income levels, and 38.4% (N = 125) had unknown parent income levels. Some included student demographic information is summarized in table three and four.

Table 3
Included Students Grade Level and Gender

<table>
<thead>
<tr>
<th>Grade Level/Gender</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>24.4%</td>
<td>25.0%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Grade 3</td>
<td>15.2%</td>
<td>13.4%</td>
<td>28.6%</td>
</tr>
<tr>
<td>Grade 4</td>
<td>10.7%</td>
<td>11.3%</td>
<td>22.0%</td>
</tr>
<tr>
<td>Total</td>
<td>50.3%</td>
<td>49.7%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 4
Included Students Grade Level and Parent Income Level

<table>
<thead>
<tr>
<th>Grade Level/Income</th>
<th>Low</th>
<th>Middle</th>
<th>High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>17.9%</td>
<td>2.9%</td>
<td>36.7%</td>
<td>57.5%</td>
</tr>
<tr>
<td>Grade 3</td>
<td>10.6%</td>
<td>1.9%</td>
<td>19.8%</td>
<td>32.4%</td>
</tr>
<tr>
<td>Grade 4</td>
<td>2.9%</td>
<td>0%</td>
<td>7.2%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Total</td>
<td>31.4%</td>
<td>4.8%</td>
<td>63.8%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Descriptive Statistics

Teacher EI scores. Descriptive statistics were calculated for teacher participant’s overall EI scores on the MSCEIT. As outlined in Table 5 below, the mean score for overall EI was 90.41 (SD = 8.51). Teacher participant scores ranged 32.02 points from a low of 76.52 to a high of 108.54. It is important to note that, after careful consideration, two teachers’ EI scores
were averaged together for use in the data set because they co-taught in one classroom. It was explained to this researcher that both teachers were with the students for equal amounts of time throughout the school day and that both teachers worked equally with all students in the classroom.

Table 5  
*Descriptive Statistics for Teacher EI Scores*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Max</th>
<th>Min</th>
<th>Range</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall EI</td>
<td>90.41</td>
<td>8.51</td>
<td>108.54</td>
<td>76.52</td>
<td>32.02</td>
<td>336</td>
</tr>
</tbody>
</table>

**Academic progress scores.** Table 6 outlines descriptive statistics for included students’ overall academic progress scores as well as the scores that were utilized to calculate the overall progress scores: beginning of year (BY) DIBLES ORF scores, end of year (EY) DIBES ORF scores, beginning of year (BY) percentile scores, and end of year (EY) percentile scores. The first step in calculating a student’s overall academic progress score was to convert both the beginning of year and end of year DIBLES ORF scores into a percentile score which correlated with each student’s grade level and time of DIBLES assessment (fall or spring) as outlined in the DIBLES Technical Manual. The end of year percentile scores were then subtracted from the beginning of year percentile scores in order to attain an overall academic progress score. Overall progress scores could be positive or negative. If a student ended the school year at a higher percentile level than when they began, their overall progress score would be positive. On the other hand, if a student ended the year at a lower percentile level than when they began, their overall progress score would be negative. Overall academic progress scores ranged 67 points
from a low of -34 to a high of 33, with a mean score of -0.26. As expected, the overall academic progress mean aligns with the difference in means between the end of year percentile scores and the beginning of year percentile scores.

Table 6
*Descriptive Statistics for Included Students’ Academic Progress Scores*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Max</th>
<th>Min</th>
<th>Range</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Academic Progress</td>
<td>-0.26</td>
<td>11.12</td>
<td>33</td>
<td>-34</td>
<td>67</td>
<td>336</td>
</tr>
<tr>
<td>BY DIBLES ORF scores</td>
<td>85.21</td>
<td>37.52</td>
<td>207</td>
<td>0</td>
<td>207</td>
<td>336</td>
</tr>
<tr>
<td>EY DIBLES ORF scores</td>
<td>116.33</td>
<td>38.60</td>
<td>236</td>
<td>12</td>
<td>224</td>
<td>336</td>
</tr>
<tr>
<td>BY percentile scores</td>
<td>59.66</td>
<td>28.16</td>
<td>99</td>
<td>0</td>
<td>99</td>
<td>336</td>
</tr>
<tr>
<td>EY percentile scores</td>
<td>59.41</td>
<td>28.59</td>
<td>99</td>
<td>1</td>
<td>98</td>
<td>336</td>
</tr>
</tbody>
</table>

**Inferential Data Analysis**

*Analysis for the overarching research question.* A Pearson’s r correlation analysis was utilized to assess the overarching research question and its corresponding hypothesis, which are both restated below.

Overarching Research Question: To what extent is teacher EI related to urban elementary school students’ academic progress?

Corresponding Hypothesis: Teacher EI will be significantly and positively correlated with student academic progress.

Table 7 below outlines the results of the Pearson’s r correlation analysis between the independent variable of transformed teacher EI and the dependent variable of transformed student academic progress. Again, data was transformed because it did not meet the required assumptions for utilizing parametric analyses. Data was transformed through a two-step approach for
transforming continuous variables to normal, as described by Templeton (2011). For each variable, the first step in the transformation was to transform the data into a percentile rank in order to create uniformly distributed probabilities. In the second step, an inverse normal transformation was applied to the data which created a variable consisting of normally distributed z-scores.

Table 7
Pearson’s Correlation Results (Transformed Teacher EI and Transformed Student Academic Progress)

<table>
<thead>
<tr>
<th>Transformed Teacher EI</th>
<th>Pearson Correlation</th>
<th>Sig. (1-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transforme Student Academic Progress</td>
<td>0.020</td>
<td>0.360</td>
<td>336</td>
</tr>
</tbody>
</table>

The results of the Pearson’s r correlation analysis indicate that there is a positive relationship between the variables of transformed teacher EI and transformed student academic progress ($r = 0.020$). However, according to Muijs (2011), the calculated correlation coefficient indicates a weak relationship, as does any at or below 0.1. Further, the significance level ($p = 0.360$) is far from the level typically desired to indicate a statistically significant result. Therefore, the hypothesis for the overarching research question was “not supported” as the weak, positive correlation found between teacher EI and student academic progress did not reach the acceptable level of statistical and practical significance.

**Analysis for sub-question 1.** A moderation analysis was utilized to assess the first sub-question and its corresponding hypothesis, which are both restated below.

**Sub-question 1:** To what extent does student grade level moderate the relationship between teacher EI and student academic progress?
Corresponding Hypothesis: As student grade level increases, the strength of the relationship between teacher EI and student academic progress will decrease.

The moderation analysis produced an overall model result of $R^2 = 0.02$ and $p = 0.09$, indicating that all three predictors (student grade level, transformed teacher EI, and the interaction of those two variables) accounted for only 2% of the variance in student academic progress and that the overall model was not statistically significant. However, within the model, there were some significant findings. Table 8 below outlines output related to the model summary of the moderation analysis.

Table 8
*Moderation Analysis: Model Summary Output (Potential Moderating Variable of Grade Level)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.28</td>
<td>0.62</td>
<td>-0.45</td>
<td>0.65</td>
</tr>
<tr>
<td>Grade Level</td>
<td>-0.32</td>
<td>0.77</td>
<td>-0.41</td>
<td>0.68</td>
</tr>
<tr>
<td>Transformed Teacher EI</td>
<td>0.00</td>
<td>0.08</td>
<td>-0.03</td>
<td>0.98</td>
</tr>
<tr>
<td>Interaction</td>
<td>-0.29</td>
<td>0.12</td>
<td>-2.45</td>
<td>0.01</td>
</tr>
</tbody>
</table>

*Note:* Model outcome = transformed student academic progress. ‘Interaction’ indicates the interaction between student grade level and transformed teacher EI.

Results, outlined above, indicate that student grade level ($p = 0.68$) and transformed teacher EI ($p = 0.98$) were not significant predictors of transformed student academic progress. However, the interaction between the variables of student grade level and transformed teacher EI was a significant predictor of transformed student academic progress ($p = 0.01$). Therefore, student grade level is considered a modifying variable as it impacts the relationship between transformed teacher EI and transformed student academic progress at a statistically significant level.
The moderation analysis also provided conditional effects output which assisted in the evaluation of how the variable of grade level moderated the relationship between teacher EI and student academic progress. Table 9 below summarizes the data from the conditional effects output.

Table 9  
*Moderation Analysis: Conditional Effects Output (Potential Moderating Variable of Grade Level)*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Effect</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.21</td>
<td>.11</td>
<td>1.95</td>
<td>0.05</td>
</tr>
<tr>
<td>3</td>
<td>-0.08</td>
<td>.09</td>
<td>-0.91</td>
<td>0.37</td>
</tr>
<tr>
<td>4</td>
<td>-0.37</td>
<td>.18</td>
<td>-2.05</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Results, outlined above, indicate that at grade level two, there was a positive relationship between teacher EI and student academic progress (Effect = 0.21). Further, according to Hayes (2013) this relationship is considered modest and was statistically significant (p = 0.05). Next, at grade level three, there was a weak and negative relationship between teacher EI and student academic progress (Effect = -0.08). However, this result was not statistically significant (p = 0.37). Finally, at grade level four, there was a modest, negative, and statistically significant relationship between teacher EI and student academic progress (Effect = -0.37, p = 0.04). The results of this moderation analysis are interesting and do align in many aspects with the outlined theoretical framework and previous research (to be discussed in the next chapter). However, the hypothesis for the first sub-question was found to be “not supported” as the strength of the relationship between teacher EI and student academic progress did not decrease as student grade level increased; instead the direction of the relationship went from positive to negative.
**Analysis for sub-question 2.** A moderation analysis was utilized to assess the second sub-question and its corresponding hypothesis, which are both restated below.

Sub-question 2: To what extent does parent income level moderate the relationship between teacher EI and student academic progress?

Corresponding Hypothesis: As parent income level increases, the strength of the relationship between teacher EI and student academic progress will decrease.

The moderation analysis produced an overall model result of $R^2 = 0.03$ and $p = 0.11$, indicating that all three predictors (parent income level, transformed teacher EI, and the interaction of those two variables) accounted for only 3% of the variance in student academic progress and that the overall model was not statistically significant. Further, within the model, there were no significant findings. Table 10 below summarizes the output related to the model summary of the moderation analysis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.29</td>
<td>0.82</td>
<td>0.36</td>
<td>0.72</td>
</tr>
<tr>
<td>Parent Income Level</td>
<td>1.74</td>
<td>0.90</td>
<td>1.92</td>
<td>0.06</td>
</tr>
<tr>
<td>Transformed Teacher EI</td>
<td>0.13</td>
<td>0.09</td>
<td>1.50</td>
<td>0.14</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.04</td>
<td>0.10</td>
<td>0.41</td>
<td>0.68</td>
</tr>
</tbody>
</table>

*Note: Model outcome = transformed student academic progress. ‘Interaction’ indicates the interaction between parent income level and transformed teacher EI.*

Results, outlined above, indicate that transformed teacher EI ($p = 0.14$) and the interaction between parent income level and transformed teacher EI ($p = 0.68$) were not significant.
predictors of transformed student academic progress. While parent income level approached significance (p = 0.06), it also did not reach the level of significance typically considered statistically significant, indicating that parent income level was also not a significant predictor of transformed student academic progress. Therefore, student grade level is not considered a modifying variable as it did not impact the relationship between transformed teacher EI and transformed student academic progress at a statistically significant level.

Although parent income level was not found moderate the relationship between teacher EI and student academic progress, the moderation analysis also provided conditional effects output to assist in the evaluation of how the variable of parent income level impacted the relationship between teacher EI and student academic progress. Table 11 below summarizes the data from the conditional effects output.

Table 11
Moderation Analysis: Conditional Effects Output (Potential Moderating Variable of Parent Income Level)

<table>
<thead>
<tr>
<th>Income</th>
<th>Effect</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>low</td>
<td>0.09</td>
<td>0.13</td>
<td>0.74</td>
<td>0.46</td>
</tr>
<tr>
<td>middle</td>
<td>0.13</td>
<td>0.09</td>
<td>1.50</td>
<td>0.14</td>
</tr>
<tr>
<td>high</td>
<td>0.16</td>
<td>0.11</td>
<td>1.46</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Results, outlined above, indicate that at low parent income levels, there was a weak, positive relationship between teacher EI and student academic progress (Effect = 0.09). However, this relationship was not statistically significant (p = 0.46). Similarly, at middle parent income levels, there was a modest, positive relationship between teacher EI and student academic
progress (Effect = 0.13). However, this result was also not statistically significant (p = 0.14).

Finally, at high parent income levels, there was a modest, positive relationship between teacher EI and student academic progress (Effect = 0.16). Again, these results were not statistically significant (p = 0.15). Based on the results of this moderation analysis, the hypothesis for the second sub-question was found to be “not supported” as the strength of the relationship between teacher EI and student academic progress did not decrease as parent income level increased. Instead, although not statistically significant, as parent income level increased the strength of the relationship between teacher EI and student academic progress increased.

Summary

In order to examine the relationship between teacher EI and student academic progress as well as how student grade level and parent income level impact that relationship, data was collected from 16 teacher participants and 339 included students from an urban school district in Massachusetts. The overarching research question and corresponding hypothesis outlined that there would be a significant and positive relationship between teacher EI and student academic progress. Assumptions were checked and, when the assumption of normality was not met for either variable, data was transformed. After assumptions were checked and met for transformed data, a Pearson’s r correlation was run. Results did not support the outlined hypothesis for the overarching research question. While there was a positive relationship found between the two variables, the relationship was weak and not statistically significant. In order to assess the two sub questions and their related hypotheses, which outlined that as both student grade level and parent income level increased the relationship between teacher EI and student academic progress would decrease, assumptions for a moderation analysis were checked and met. While there were some interesting and significant findings regarding the moderation analysis on grade level, the
hypotheses for both sub-questions were not supported. Results for the moderation analysis on student grade level indicated that as grade level increased the strength of the relationship between teacher EI and student academic progress did not decrease, as expected; instead the direction of the relationship went from positive to negative. Further, results from the moderation analysis on parent income level indicated that, although not statistically significant, as parent income level increased, the strength of the relationship between teacher EI and student academic progress increased rather than decrease, as expected.
Chapter 5: Discussion of Research Findings

The purpose of this study was to investigate the relationship between teacher EI and the academic progress of urban, elementary school students as well as to investigate if parent income level or student grade level moderated that relationship. This chapter will be broken down into four major sections in order to systematically discuss and carefully interpret research findings. The first section will outline research findings and interpret them as they relate to previous research as well as the selected theoretical framework. In the second section, implications of research findings will be considered in regard to the areas of theory, research, and practice. The third section will explore limitations of the study and discuss how such limitations may have impacted results. In the fourth section, while taking the research findings of this study into consideration, areas of future research regarding teacher EI and student academic progress will be discussed. The chapter will close with a thoughtful conclusion.

Results and Discussion of Research Questions

**Overarching research question and corresponding hypothesis.** Results of the Pearson’s r correlation analysis indicated that there was a weakly positive correlation between teacher EI and student academic progress. However, the relationship was not statistically significant. Therefore, the corresponding hypothesis, which predicted a significant positive relationship between the two variables, was not supported. While previous research on teacher EI and student achievement is admittedly scarce, this finding does not support the results of such previous research performed by Curci et al. (2014), which found a significant positive relationship between teacher EI abilities and student performance. Further, the finding does not align with expected outcomes based on the theoretical framework of social learning theory. Social learning theory would suggest that observable behaviors related to teacher EI are picked
up by students through observational learning and reinforced vicariously through such observations. Thus, social learning theory would predict that if a teacher has high EI, the skills and behaviors that students learn from him or her will be associated with a decrease in incidents of student misbehavior. Previous research would then suggest that decreased student misbehavior would be associated with an increase in overall classroom academic achievement (McPherson et al. 2011).

One potential explanation for the contrast in the finding of the overarching research question as compared to the findings of similar previous research and what was expected based on the theoretical framework, is the small sample size of teacher participants. The priori power analysis of the necessary teacher sample size for the study found that in order to meet the minimum confidence level of 90% with a 5% confidence interval, a sample size of 45 teacher participants was necessary. However, despite an increase in study incentives one week into recruitment and an extended deadline to participate, only 16 teachers participated in the study. Further, two of the teacher’s scores had to be averaged because they co-taught a classroom, which brings the utilized teacher sample size to 15. Since the minimum suggested sample size, based on the priori power analysis, was not attained, statistical power was reduced and there was an increased risk for Type II error, where a relationship that does actually exist is not detected (Vogt, 2007).

Overall, while the hypothesis corresponding to the overarching research question was not supported, a significant and positive relationship between teacher EI and student academic progress in the overall population should not be completely discounted. Rather, results should be taken with a grain of salt and carefully interpreted as the extremely small teacher sample size most likely greatly reduced statistical power which lead to Type II error. Further, despite the
extremely small teacher sample size, a positive correlation was found between teacher EI and student academic progress (even though it was weak and not statistically significant), which is also encouraging.

**Sub-question 1 and corresponding hypothesis.** Results of the moderation analysis regarding student grade level indicated that it was a statistically significant modifying variable on the relationship between teacher EI and student academic progress. More specifically, as grade level increased the relationship between teacher EI and student academic progress went from moderately positive to weakly negative to modestly negative and was statistically significant at the outer grade levels (grade level 2 and grade level 4). Therefore, the hypothesis corresponding to the first sub-question, which outlined that as grade level increased, the strength of the relationship between teacher EI and student academic progress would decrease, was not supported. However, the findings do align in many aspects to the theoretical framework and previous research.

Previous research on child development established a decrease in adult influence and an increase in peer influence as children progress through elementary school; while at the start of elementary school significant adults, such as teachers and parents, are central to children’s social and emotional development, by the end of the elementary years, peers play the most significant role (Wood, 2007). Further, social learning theory outlines that during the attentional process of observational learning, models that are more influential to the observer receive increased attention. Taken together, it was hypothesized that as student grade level increased, less attention would be given to teacher behaviors resulting in the strength of the relationship between teacher EI and student academic progress to decrease. However, based on the outlined information, it also makes sense that direction of the relationship could go from positive to
negative and that the relationship would be more strongly positive at the younger grade levels and more strongly negative at the older grade levels. In other words at second grade, when adult influence is still greater than peer influence, a modestly positive and statistically significant relationship between teacher EI and student academic progress is feasible. At third grade, when adult influence is weaning and peer influence is strengthening, a weakly negative relationship also makes sense. Finally, at fourth grade, when peer influence is stronger than adult influence, a modestly negative relationship is also within reason.

Overall, based on the results of the moderation analysis performed for the first sub-question, the corresponding hypothesis was not supported. However, the results of the analysis do align in many aspects with what could reasonably be expected based on previous research and the outlined theoretical framework.

**Sub-question 2 and corresponding hypothesis.** Results of the moderation analysis for the second sub-question indicated that parent income level was not a modifying variable as it did not impact the relationship between teacher EI and student academic progress at a statistically significant level. Further, although not statistically significant, as parent income level increased the strength of the relationship between teacher EI and student academic progress also increased from weak to modest. Therefore, the hypothesis corresponding to the second sub-question, which outlined that as parent income level increased, the strength of the relationship between teacher EI and student academic progress would decrease, was not supported.

The findings related to the second sub-question were in stark contrast to what was hypothesized based on previous research and the outlined theoretical framework. Previous research indicates a strong relationship between parent income and academic achievement (Lacour & Tissington, 2011). The outlined theoretical framework would suggest that the
relationship between increased parental income and increased academic achievement occurs mainly because of the positive skills and behaviors, which support academic success, that children learn from parents with higher levels of income. Thus, it was anticipated that the positive impact of teacher EI would likely be diminished for students from high income levels, as these students have already learned the skills and behaviors that teachers with high EI exhibit.

One potential explanation for the difference in the findings of the second sub-question as compared to what was expected based on previous research and the theoretical framework may be related to an incorrect interpretation of how the theoretical framework and previous research impact the variables under investigation. It was outlined that the theoretical framework of social learning theory would suggest that the relationship between increased parent income and increased academic achievement found in previous research (Lacour & Tissington, 2011), occurs mainly because of the positive skills and behaviors, which support academic success, that children learn from their parents and that their parents reinforce. Thus, it was inferred that for students whose parents have high income levels, the positive impact of a teacher with high levels of EI would likely be diminished, as these students had already learned, from their parents, the skills and behaviors that such teacher’s exhibit. However, it is plausible that this inference was incorrect and that, instead, students whose parents have high income levels get the skills and behaviors their parents exhibit, which support academic success, further reinforced by teachers with high EI, who exhibit similar skills and behaviors. This interpretation of previous research and the theoretical framework on the variables under investigation, would suggest an increase in the relationship between teacher EI and student academic progress, as parent income level increases, which is more aligned with the findings in this study.
Further, the small sample sizes in regard to the moderation analysis for the second sub-question, may account for why an acceptable level of statistical significance was not reached. As outlined previously, data cleansing identified that the variable of parent income level was missing 125 pieces of data. At the time of the moderation analysis for parent income level, the included student sample size was 207 and the teacher participant sample size was 10. The priori power analysis for included student sample size found that in order to meet the minimum accepted confidence level of 90% with a 5% confidence interval, a sample size of 225 included students was necessary. Further, the priori power analysis for teacher participant sample size found that in order to meet the minimum accepted confidence level and interval, a sample size of 45 teacher participants was required. The attained included student sample size of 207 did not meet the minimal sample size of 225 computed by the priori power analysis. Similarly, the attained teacher participant sample size of 10 was nowhere near the computed minimum sample size of 45. Thus, the small sample sizes for this moderation analysis likely reduced statistical power and lead to Type II error, where a relationship that does actually exist is not detected (Vogt, 2007).

Overall, the hypothesis corresponding to the second sub-question, which outlined that as parent income level increased, the strength of the relationship between teacher EI and student academic progress would decrease, was not supported. It is feasible that the findings of an increase in strength between teacher EI and student academic progress as parent income level increased, although not statistically significant, could be explained by a different interpretation of the previous research and the theoretical framework on the variables under investigation. Further, it is possible that with increased power through larger sample sizes an acceptable level of statistical significance would have been attained.
Implications of Findings

This study aimed to examine the relationship between teacher EI and student academic progress of urban, elementary school students. It also aimed to investigate if student grade level and parent income level moderated that relationship. The following section discusses the implications of this study’s findings as they relate to theory, research, and practice in the area of teacher EI.

**Implications for theory.** Findings failed to support the hypothesis of a significant and positive relationship between teacher EI and student academic performance. Similarly, findings did not support the theories on EI which purport that increased EI significantly impacts many areas of one’s life, including work performance (Bar-On, 1997; Goldman, 1995). However, the findings also do not rule out the possibility that teacher EI does play a significant role in student academic outcomes. Further, findings related to the first sub-question are the first to investigate and provide empirical evidence that student grade level moderates the relationship between teacher EI and student academic progress. Specifically, findings indicate that as grade level increases, the direction of the relationship between teacher EI and student academic progress moves from positive to negative. Future research will assist in more thoroughly assessing the relationships between variables in this study and how they fit into the theories of EI.

**Implications for research.** Findings related to the overarching research question did not assist in further solidifying the significant and positive relationship between teacher EI and student academic outcomes, established by Curci et al. in 2014. However, the results do not necessarily contradict the study by Curci et al. (2014) as a positive, but not statistically significant relationship was found. As future researchers are able to attain sample sizes that allow for appropriate statistical power, the relationship between teacher EI and student academic
Outcomes will surely become evident. Similarly, with larger sample sizes and increased statistical power, the impact grade level and parent income level may have on the relationship between teacher EI and student academic outcomes will become clearer.

Implications for practice. The investigation of the relationship between teacher EI and student academic outcomes is just beginning. As such, current educational practice does not typically incorporate assessment of teacher EI in teacher preparation programs, the teacher hiring process, or as an intervention for struggling teachers. Since findings of the current study failed to support the hypothesis of a significant and positive relationship between teacher EI and student academic performance, current educational practice is not likely to change. Further, based on the results of this study, it is also unlikely that any funding will be allocated for evidence based EI training programs in the educational field. Similarly, in light of the significant finding related to the impact of student grade level on the relationship between teacher EI and student academic progress, current educational practice is unlikely to change unless future research can establish that teacher EI impacts student progress.

Research Limitations

This research study was built on a well recognized theory of EI and utilized an ability based EI assessment instrument, rather than a self-report instrument, that exhibited strong reliability and validity. Further, throughout the study threats to validity, reliability, and generalizability were carefully considered and several steps to reduce such threats were taken. However, there were still limitations to this study which are outlined and discussed in this section.

The first major limitation is the extremely small sample size for teacher participants. Vogt (2007) outlines that sample size is essential because it affects statistical power. Vogt states
that, “the price of using a sample that is too small is reduced statistical power; that is, increased risk of Type II error, which means you could fail to detect an actual relationship in a population” (2007, p. 84). The priori power analysis conducted to calculate the necessary teacher sample size for the study, found that in order to meet the minimum confidence level of 90% with a 5% confidence interval, a sample size of 45 teacher participants was necessary. However, nowhere near the minimum suggested sample size was reached, with an attained teacher’s participant sample size of 15. This was despite an increase in study incentives one week into recruitment and an extended deadline to participate, both executed in hopes of increasing sample size after a disappointing initial response to participant recruitment efforts. Based on the small teacher sample size, it is likely that the statistical analyses conducted did not identify relationships that actually existed, limiting the validity of the analyses results.

Another limitation to the study surrounds the normality of data, specifically teacher EI data. Before data transformation, the teacher EI variable was found to violate the assumption of normality. After data transformation, the histogram created for the variable of transformed teacher EI (see Appendix E, Figure E7), while improved from before data transformation, still did not replicate a normal data distribution. However, calculation of the significance value for transformed teacher EI (i.e., “Sig”) under the “Kolmogorov-Smirnov” test of normality (see Appendix E, Figure E9) did reach the level typically considered to indicate a normal distribution. Taken together, the assumption of normality was not found to be violated. It is also important to note that based on the central limit theorem, the assumption of normality can be ignored for a large sample size (Field, 2013). While the teacher sample size was only 15, there were 336 included students, resulting in 336 units of data, which is considered a large sample size according to Field (2013). Therefore, while a strong argument has been made that teacher EI
data did not violate the assumption of normality, it is acknowledged that this is a limitation of the study that potentially reduced statistical power and, thus, the study’s validity and reliability.

Another important limitation of this research includes the possibility of bias associated with volunteers. Although convenience sampling was utilized in this study, in the sense that all teachers who met participation criteria within the study cite were invited to participate, the study relied on invited teacher participants to volunteer to participate.Muijs (2011) outlines that people who volunteer to participate in research are often atypical and may not constitute a representative sample of the target population. While this study did offer a participation incentive, which was the strategy Muijs (2011) suggested in order to help alleviate volunteer bias, this bias is still a limitation which could have impacted the validity and reliability of the study’s findings.

Finally, generalizability of findings in this study are limited based on the setting of the study as well as the population under investigation. Generalizability refers to the extent results of a study relate to, or are true for, the overall population (Muijs, 2011). Participants in this study were selected from an urban school district in Massachusetts. It is likely that results of this study will generalize to other urban school districts in Massachusetts as the geographic location, teacher characteristics, and student characteristics related to ethnic diversity, special needs status, home language, and poverty will likely be similar. However, it is unlikely results will generalize to urban school districts in other states or in any places outside of the United States as the outlined student characteristics will be varied to a greater extent as will teacher characteristics. It is also unlikely, for the same reasons, that findings will generalize to any suburban or rural systems, no matter where the location. Further, the target population in this study was elementary school level teachers and students. Therefore, results should not be generalized to
the middle or high school levels as student development impacting the effect of teacher EI at these levels is very different from the development at the elementary level. Similarly, teacher characteristics, beliefs, and practices are likely to significantly vary at the different levels. Overall, due to this study’s limited setting and student population, research findings should be analyzed carefully and responsibly before applying them to other locations and populations.

**Areas of Further Research**

Given the limitations in this study, which may have reduced statistical power and increased the chances of Type II error, additional research is necessary in order to more thoroughly investigate the relationship between teacher EI and the academic progress of urban, elementary school students, as well as how grade level and parent income may moderate this relationship. A priority of future studies should be to attain sufficient sample sizes, which will help ensure appropriate statistical power. In order to accomplish this, future researchers could consider revising study incentives. Such researchers may still want to consider offering small individual rewards to all participants, but only offering chances at larger rewards to certain groups, such as participating teachers in the school with highest participation rates. This may increase participation rates by increasing publicity of the study. Teachers may be more likely to talk amongst themselves about the study if the chance at a large reward is based on the school with the highest participation rate rather than individual completion. Future researchers may also want to consider offering incentives not only to participating teachers, but also to certain participating school principals. For example, an incentive could be offered to principals who give up some of their mandatory meeting time with teachers, such as time during a mandatory staff meeting or grade level planning meetings, in order to provide interested teachers the time to complete the EI assessment. Teachers may be more likely to participate if they do not have to
give up their own personal time to complete the assessment. Finally, future researchers should carefully consider the time of the school year during which teachers are invited to participate as well as the length of the participation window. Such issues were considered during this study which was why participant emails were sent after state achievement assessments were completed for the school year and when most teacher evaluations were complete. However, time constraints did play a considerable role in the options that were available regarding both when recruitment began and how long recruitment lasted, which may have impacted the overall sample size.

Another possible area of further research, which may have also played a role in the study’s small sample size, surrounds the EI assessment instrument. As previously discussed, three main tools exist that align with the three main theories of EI. Comparatively, the MSCEIT was found to be the most valid and reliable of the three main tools. Further, the MSCEIT was the only ability based assessment of the three. The assessment of EI ability rather than the perception, or self report, of EI ability is important because “actual skill is very different (i.e., uncorrelated or minimally correlated) with self-judged skills in this area” (University of New Hampshire, n.d., para. 2). However, the MSCEIT is quite lengthy; it is comprised of 141 questions and takes an average of 30 – 45 minutes to complete. The length of the assessment paired with the fact that most, if not all, teacher participants completed the assessment during their personal time, may have contributed to the small sample size which reduces statistical power and increases the chance of Type II error. The development of a shortened version of the MSCEIT or the creation of an altogether different and shorter ability based EI assessment would likely be beneficial to researchers investigating many areas related to EI.
More specific to the investigation of the relationship between teacher EI and student academic progress, it is suggested that in the near future, researchers continue to utilize a quantitative design with a similar student population. Based on various, previously cited areas of research and the theoretical connections, or links, between such previous research, the urban, elementary school population is the most likely to be impacted by teacher EI. If research with similar student populations does establish a significant relationship between teacher EI and student academic progress, the next sensible step would be to continue to utilize a quantitative design to investigate the relationship between teacher EI and student academic progress with other student populations and in other geographic locations to help generalize findings.

Subsequent research may then branch into other areas. Some researchers may wish to use a quantitative design in order to investigate the strength of the relationship between teacher EI and student academic progress as compared with other variables previously found to be associated with increased academic progress. Other researchers may wish to utilize quantitative designs to explore the impact of student experience and/or perception of certain non-cognitive characteristics, such as motivation, interest, enjoyment, engagement, and retention, on the relationship between teacher EI and student academic progress. Conversely, a qualitative design may also be helpful to investigate teachers’ perception of EI and its role in the classroom as well as students’ perception of the impact of teacher EI. Finally, some researchers may wish to utilize a causal-comparative design in an attempt to establish a causal relationship between teacher EI and student academic progress.

Conclusion

The field of EI emerged between 1990 and 1994 and is a relatively new area of psychological study (Mayer, 2006). Although there is an abundance of research related to
student EI and various student outcomes, very few studies have investigated the relationship between teacher EI and student outcomes. The purpose of this study was to investigate the relationship between teacher EI and the academic progress of urban, elementary school students as well as to investigate if parent income level or student grade level moderates that relationship. Data on teacher EI was collected from 16 participating teachers while student academic progress scores were calculated for 336 included students in an urban, public school district in Massachusetts. The finding for the overarching research question suggested that teacher EI is not significantly related to student academic progress as the weak, positive correlation found between teacher EI and student academic progress did not reach the acceptable level of statistical and practical significance. The findings for the first sub-question suggest that student grade level does moderate the relationship between teacher EI and student academic progress with the direction of the relationship going from positive to negative as grade level increases. Finally, the findings of the second sub-question suggest that parent income does not moderate the relationship between teacher EI and student academic progress.

This study’s findings were considered in regard to EI research, theory, and educational practice. Findings did not support theories on EI which purport that increased EI significantly impacts many areas of one’s life, including work performance (Bar-On, 1997; Goldman, 1995). They also did not help to solidify results of previous research which found a significant and positive relationship between teacher EI and student academic outcomes (Curci et al., 2014). Further, current educational practice, which does not typically address teacher EI, is unlikely to change based on the findings of this study. However, there were several limitations in this study which impacted statistical power of analyses and increased the chances of Type II error, including an extremely small teacher sample size, a question of data normality regarding teacher
EI, and volunteer bias. Therefore, findings should be thoughtfully analyzed before applying them to EI theory, research, or educational practice.

Additional research is necessary in order to more thoroughly investigate the relationship between teacher EI and student academic progress, as well as how grade level and parent income may moderate this relationship. A priority of future studies should be to attain sufficient sample sizes, which will help ensure appropriate statistical power. Variations in study incentives as well as consideration regarding time and length of recruitment may be ways to increase sample size. Further, based on the length of the MSCEIT, the development of a shortened version or the creation of an altogether different and shorter ability based EI assessment would likely help to increase sample sizes. Based on previous research which finds that students in urban communities often face numerous challenges that work to hinder their academic achievement, studies in the near future should utilize an urban student population, which is most likely to be impacted by teacher EI. If such research does establish a significant relationship between teacher EI and student academic progress, subsequent research may work to generalize findings to other student populations and geographic locations. In the long run researchers may investigate other areas related to teacher EI, such as the strength of the relationship between teacher EI and student academic progress as compared with other variables previously found to be associated with increased academic progress, the impact of student experience and/or perception of certain non-cognitive characteristics on the relationship between teacher EI and student academic progress, teachers’ perception of EI and its role in the classroom, students’ perception of the impact of teacher EI, and if there is a causal relationship between teacher EI and student academic progress. However, based on the numerous obstacles urban students face
in attaining academic success, it is imperative that researchers initially investigate factors that
may help to increase the academic achievement of urban students, such as teacher EI.
References


Hello,

My name is Danielle Moreau and I am inviting you to participate in my doctoral research study through Northeastern University. The study is taking place within the [redacted] School District and is investigating the relationship between teacher emotional intelligence and the academic progress of urban, elementary school students. If you participate, you will be asked to complete a one-time, online survey which will assess your level of emotional intelligence. On average, the survey takes between 30 – 45 minutes to complete. As a token of appreciation for completing the survey by the due date of June 25, 2015, you will receive a $5 Dunkin Donuts gift card and be entered in a drawing to win a $100 pre-paid credit card. The $5 gift card will be delivered to your school on June 26, 2015. The drawing for the pre-paid credit card will take place on June 26, 2015 and the winner will be contacted via email. I hope you consider participating in this study!

Your part in this study will be handled in a confidential manner; ONLY I will have access to the results of your survey. Your results will NOT be shared with anyone, including any Attleboro school district employee or administrator. Further, any reports or publications based on this research will use general descriptors, such as “an urban school in Massachusetts” and will not identify you, or any individual, as being affiliated with this project.

If you are interested in participating, please first review the attached ‘participant informational sheet’ which provides more detailed information about the study. You can then review the attached ‘informed consent’ document. At the end of the informed consent document you will be asked to click a link if you agree to participate in the study. By clicking on the survey link, you are indicating that you consent to participate in the study and will be directed to the online survey login page. At the login page use Code: 32628-001-000 and Password: teacher to log in. Instructions for how to complete the survey will appear once you have logged in. Again, the survey should take between 30 – 45 minutes to complete. Please only log in when you have that amount of time available, as progress on the survey cannot be saved.

If you have any questions or concerns, please feel free to contact me!

Thank you for your consideration,
Danielle Moreau
Thank you so much for your interest in participating in my doctoral research study! Below, you will find a summary of the study as well as opt-out information and researcher contact information.

This study will investigate how a teacher’s emotional intelligence is related to the academic progress of urban, elementary school students. It will also look into how student grade level as well as parent income level effects that relationship. It is expected that there will be a strong relationship in that teachers with higher levels of emotional intelligence will have students who make more academic progress throughout the school year. It is also expected that as both student grade level and parent income level increases the relationship between teacher emotional intelligence and student academic progress will not be as strong.

Data for the study will be collected in the following manner:

- Teacher participants will complete an online survey in order to assess teacher emotional intelligence.
- Data to calculate student academic progress will be collected on all students of teachers who decide to participate in the study by reviewing school records for oral reading fluency (ORF) scores on the Dynamic Indicators of Basic Early Literacy Skills (DIBLES) assessment.
- School records will be reviewed in order to gather student grade level data.
- School records, specifically lunch status, will be reviewed to gather data for parent income level.

All participant data will be handled in a confidential manner with ONLY the student researcher, Danielle Moreau, having access to the results of surveys. Further, your results will NOT be shared with anyone, including any school district employee or administrator. Results will initially be stored in a password protected online file folder. After data analysis is complete, approximately January 1, 2016, results will be printed and all computer based record of results will be deleted. Results will then be stored in a locked filing cabinet for five years. After five years, all data will be shredded and discarded. Any reports or publications based on this research will use general descriptors, such as “an urban school in Massachusetts” and will not identify you, or any individual, as being affiliated with this project.
There are no foreseeable risks or discomforts to you for taking part in this study. There are also no direct benefits to you from participating in this study. However, as a token of our appreciation for completing the survey by the due date, you will receive a $5 Dunkin Donuts gift card and be entered into a drawing to win a $100 pre-paid credit card.

The decision to participate in this research study is voluntary. You do not have to participate and you can decide to stop participating at any time. You can refuse to answer any question on the online survey and even if you begin the survey, you can stop at any time.

If you have any questions or concerns, please do not hesitate to contact me using the contact information below. I typically return phone calls and emails within 24 hours. Thank you again for your interest in participation!

Student Researcher Contact Information:
Danielle Moreau
Cell phone: (508) 287-7980
Email: moreau.d@husky.neu.edu

**Attached Informed Consent**

Northeastern University, Department of Education
Name of Investigators: Danielle Moreau – Student Researcher  
Dr. Yufeng Qian – principal investigator and NU research advisor

We would like to invite you to participate in a web-based online survey. The survey is part of a research study whose purpose is to investigate the relationship between teacher emotional intelligence and the academic progress of urban, elementary school students. It will also look into how student grade level as well as parent income level effects that relationship. This survey should take about 30 – 45 minutes to complete. We are asking you to participate in this study because you are an urban, elementary school teacher. You must be at least 18 years old to take this survey.

The decision to participate in this research project is voluntary. You do not have to participate and you can refuse to answer any question. Even if you begin the web-based online survey, you can stop at any time.

There are no foreseeable risks or discomforts to you for taking part in this study.

There are no direct benefits to you from participating in this study. However, your responses may help us learn more about the relationship between teacher emotional intelligence and student academic progress. Further, as a token of our appreciation for completing the survey, you will receive a $5 Dunkin Donuts gift card and be entered in a drawing to win a $100 pre-paid credit card.
Your part in this study will be handled in a confidential manner. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project.

If you have any questions regarding electronic privacy, please feel free to contact Mark Nardone, NU’s Director of Information Security via phone at (617) 373-7901, or via email at privacy@neu.edu.

If you have any questions about this study, please feel free to contact Danielle Moreau, the person mainly responsible for the research, via phone at (508) 287-7980, or via email at moreau.d@husky.neu.edu. You can also contact Yufeng Qian, the principal investigator, via phone at (617) 373-2400, or via email at je.qian@neu.edu.

If you have any questions regarding your rights as a research participant, please contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: (617) 373-4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

This study has been reviewed and approved by the Northeastern University Institutional Review Board (# CPS15-03-14).

By clicking on the survey link below, you are indicating that you consent to participate in this study and will be directed to the online survey login page. At the login page use CODE: 32628-001-000 and PASSWORD: teacher to log in. Instructions for how to complete the survey will appear once you have logged in. The survey should take between 30 – 45 minutes to complete, so please only log in when you have that amount of time available as progress on the survey cannot be saved.

Please print out a copy of this consent form for your records.

Survey link: http://www.mhsassessments.com

Thank you for your time.

Danielle Moreau
Appendix B – Approval Letters

Permission Letter of District Superintendent

District Letterhead

March 11, 2015

To Whom It May Concern,

I am aware and supportive of the [School District] being involved in Danielle Moreau’s doctoral research study through the College of Professional Studies at Northeastern University. I understand that her study is investigating the relationship between teacher emotional intelligence and the academic progress of urban, elementary school students.

I understand that she will also be investigating how student grade level and parent income level may moderate any relationship found between teacher emotional intelligence and student academic progress. I am allowing her to conduct this research within the [School District] Schools and am aware that in order to do so she will need to:

- recruit teacher participants through email to complete an online survey in order to assess teacher emotional intelligence
- access DIBLES oral reading fluency scores of all included students (those whose teachers decide to participate in the study) in order to collect data to calculate student academic progress
- gather the grade levels of all included students in order to assess student grade level data
- gather the lunch status (free, reduced, of full pay) of all included students in order to determine parent income level

I fully understand and consent to Ms. Moreau’s research project taking place within the [School District].

Thank you,

Signature on file

Superintendent of Schools
Permission Letters of Elementary School Principals

March 11, 2015

To Whom It May Concern,

I am aware and supportive of ______________________ Elementary School of the ______________________ School District being involved in Danielle Moreau’s doctoral research study through the College of Professional Studies at Northeastern University. I understand that her study is investigating the relationship between teacher emotional intelligence and the academic progress of urban, elementary school students. I understand that she will also be investigating how student grade level and parent income level may moderate any relationship found between teacher emotional intelligence and student academic progress. I am allowing her to conduct this research within the ______________________ Elementary School and am aware that in order to do so she will need to:

- recruit teacher participants through email to complete an online survey in order to assess teacher emotional intelligence
- access DIBLES oral reading fluency scores of all included students (those whose teachers decide to participate in the study) in order to collect data to calculate student academic progress
- gather the grade levels of all included students in order to assess student grade level data
- gather the lunch status (free, reduced, of full pay) of all included students in order to determine parent income level

I fully understand and consent to Ms. Moreau’s research project taking place within the ______________________ Elementary School.

Thank you,

Signatures on file

Principal
Appendix C – MSCEIT Sample Questions

1. What mood(s) might be helpful to feel when following a very complicated, demanding, cooking recipe?

<table>
<thead>
<tr>
<th>Mood</th>
<th>Not Useful</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) tension</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>b) sorrow</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>c) neutral mood</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

2. Tatiana was annoyed that a coworker took credit for a project, and when he did it again she felt ________.

   a) anger
   b) annoyance
   c) frustration
   d) startled
   e) depression

3. Mara woke up feeling pretty well. She had slept well, felt well rested, and had no particular cares or concerns. How well would each action preserve her mood?

   Action 1: She got up and enjoyed the rest of the day.

   Action 2: Mara enjoyed the feeling and decided to think about and appreciate all the things that were going well for her.

   Action 3: She decided it was best to ignore the feeling since it wouldn’t last anyway.

   Action 4: She used the positive feeling to call her mother, who had been depressed, and tried to cheer her up.

4. Imagine feeling content on a wonderful day, with terrific news about your job and family. How much is the feeling of contentment like each of the following sensations?
111

5. A feeling of concern most closely combines the emotions of ________________.

   a) love, anxiety, surprise, anger  
   b) surprise, pride, anger, fear  
   c) acceptance, anxiety, fear, anticipation  
   d) fear, joy, surprise, embarrassment  
   e) anxiety, caring, anticipation

6. A child who was happily anticipating his birthday later felt sad. What most likely happened in between?

   a) a bully insulted him and he fought back  
   b) two friends who he was hoping would come never made it to the party  
   c) he ate too much cake  
   d) his mother embarrassed him in front of the other children  
   e) his father accused him of something he did not do
Appendix D – Institutional Review Board Approval

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Notification of IRB Action

Date: April 13, 2015
IRB #: CPS15-03-14

Principal Investigator(s): Yufeng 'Jennifer' Qian
Danielle Moreau

Department: Doctor of Education
College of Professional Studies

Address: 20 Belvidere
Northeastern University

Title of Project: The Relationship between Teacher Emotional Intelligence and the Academic Progress of urban, Elementary School Students

Participating Sites: Permission from Attleboro Public Schools in file

Informed Consent: One (1) unsigned consent

As per 45CFR46.117(a), signed consent is being waived as the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required.

DHEIS Review Category: Expedited #6, #7
Monitoring Interval: 12 months

Approval Expiration Date: APRIL 12, 2016

Investigator's Responsibilities:
1. Informed consent form bearing the IRB approval stamp must be used when recruiting participants into the study.
2. The investigator must notify IRB immediately of unexpected adverse reactions, or new information that may alter our perception of the benefit-risk ratio.
3. Study procedures and files are subject to audit any time.
4. Any modifications of the protocol or the informed consent as the study progresses must be reviewed and approved by this committee prior to being instituted.
5. Continuing Review Approval for the proposal should be requested at least one month prior to the expiration date above.
6. This approval applies to the protection of human subjects only. It does not apply to any other university approvals that may be necessary.

C. Randall Colvin, Ph.D., Chair
Northeastern University Institutional Review Board

Nan C. Regina, Director
Human Subject Research Protection

Northeastern University FWA #4630
Appendix E – Assumption Checking Results

Pearson’s r Correlation Assumption Tests (Before Data Transformation)

Assumption checking began with checking assumptions for the Pearson’s r correlation analysis. As outlined below, not all assumptions were met, resulting in data transformation.

Variable measurement. Student academic progress scores were computed by calculating the difference in percentile rankings, which ranged from 0% - 99%, from each student’s end of year DIBLES ORF assessment score and their beginning of year DIBLES ORF assessment score. A score for teacher EI was attained through the use of the teacher EI assessment instrument, the MSCEIT. The instrument is standardized with an average score of 100 and a standard deviation of 15. Therefore, both variables were measured on a continuous scale.

No significant outliers. To check for significant outliers, boxplots were created for the variables of teacher EI and student academic progress (Figure E1 and E2, respectively). Boxplots indicated that while there were no outliers within the variable of teacher EI, there were 11 outliers within the variable of student academic progress. All 11 units that contained outliers on the student academic progress variable were removed from the data set which brought the unit count in SPSS to 328.

![Boxplot](image)

*Figure E1. SPSS boxplot output for teacher EI (Pearson’s r assumption test)*
Figure E2. SPSS boxplot output for student academic progress (Pearson’s r assumption test)

**Normal distribution of data.** Although the histogram for the student academic progress variable (Figure E3) appeared to be normally distributed, the significance value (i.e., “Sig”) under the “Kolmogorov-Smirnov” test of normality (Figure E5) was below 0.05 (i.e., p > 0.05). This indicates that the variable is not normally distributed as the Kolmogorov-Smirnov test of normality assesses the null hypothesis that the data’s distribution is equal to a normal distribution. The histogram for the variable of teacher EI did not appear normally distributed (Figure E4) and the significance value (i.e., “Sig”) under the “Kolmogorov-Smirnov” test of normality (Figure E5) was below 0.05 (i.e., p > 0.05) further indicating that the variable was not normally distributed. Therefore, the variables of teacher EI and student academic progress were deemed to violate the assumption of normality.
Figure E3. SPSS histogram output for student academic progress (Pearson’s r assumption test)

Figure E4. SPSS histogram output for teacher EI (Pearson’s r assumption test)
Tests of Normality

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<sup>a</sup>. Lilliefors Significance Correction

Figure E5. SPSS tests of normality output (Pearson’s correlation assumption test)

Data Transformation

Since the variables of teacher EI and student academic progress were both found to violate the assumption of normality during assumption checking for the Pearson’s r correlation analysis, a two-step approach for transforming continuous variables to normal, as described by Templeton (2011), was utilized to transform both variables. Of note, is that before data was transformed previously identified outliers were added back to the data set. This was done in order to allow for a more complete transformation of the data and brought the unit count in SPSS back to 339. The inclusion of outliers was assessed again after the data transformation, as outlined below. For each variable, the first step in the transformation was to transform the data into a percentile rank in order to create uniformly distributed probabilities. In the second step, an inverse normal transformation was applied to the data which created a variable consisting of normally distributed z-scores.

Pearson’s r Correlation Assumption Tests (After Data Transformation)

After the transformation of both the dependent and independent variables, assumption checking was started over. As outlined below, the transformed data now met all assumptions for the Pearson’s r correlation analysis.

Variable measurement. Student academic progress scores were computed by calculating the difference in percentile rankings, which ranged from 1% - 99%, from each student’s end of
year DIBLES ORF assessment score and their beginning of year DIBLES ORF assessment score. A score for teacher EI was attained through the use of the teacher EI assessment instrument, the MSCEIT. The instrument is standardized with an average score of 100 and a standard deviation of 15. Therefore, both variables were measured on a continuous scale.

**No significant outliers.** In order to check for outliers boxplots were created for the variables of transformed teacher EI and transformed student academic progress (Figure E6). Boxplots indicated that while there were no outliers within the variable of transformed teacher EI, there were three outliers within the variable of transformed student academic progress. All three units which contained outliers on the student academic progress variable were removed from the data set in SPSS and brought the unit count to 336. After the outliers were removed from the data set, a boxplot was created again for the variable of transformed student academic progress which indicated that there were now no outliers within that variable (Figure E7).

![Figure E6](image.png)

*Figure E6. SPSS boxplot output for transformed student academic progress and transformed teacher EI (Pearson’s r assumption test)*
Figure E7. SPSS boxplot output for transformed student academic progress after removal of identified outliers (Pearson’s r assumption test)

**Normal distribution of data.** Visual inspection of the histogram created for the variable of transformed student academic progress (Figure E8) did appear to approximate a normal data distribution and its significance value (i.e., “Sig”) under the “Kolmogorov-Smirnov” test of normality (Figure E10) was above 0.05 (i.e., $p > 0.05$) further indicating a normal distribution. Therefore, the assumption of normality was not found to be violated for the variable of transformed student academic progress.

Visual inspection of the histogram created for the variable of transformed teacher EI (Figure E9) did not appear to approximate a normal data distribution. However, calculation of the significance value for transformed teacher EI (i.e., “Sig”) under the “Kolmogorov-Smirnov” test of normality (Figure E10) was above 0.05 (i.e., $p > 0.05$) indicating a normal distribution. Further, normality is suggested to be ignored for a large sample size, based on the central limit theorem (Field, 2013). Therefore, the assumption of normality was not found to be violated for the variable of transformed teacher EI.
Figure E8. SPSS histogram output for transformed student academic progress (Pearson’s r assumption test)

Figure E9. SPSS histogram output for transformed teacher EI (Pearson’s r assumption test)
Tests of Normality

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*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure E10. SPSS tests of normality output (Pearson’s correlation assumption test)

**Linear relationship.** The creation and visual inspection of a scatterplot diagram indicated a linear relationship between the variables of transformed teacher EI and transformed student academic progress (Figure E11). Further, the calculation of residuals indicated that there were no residuals within the data set that were three or more standard deviations above or below the mean. Therefore, the assumption of a linear relationship was deemed to be met.

Figure E11. SPSS scatterplot diagram output (Pearson’s correlation assumption test)
Moderation Analysis Assumption Tests (After Data Transformation)

Assumption checking for the moderation analysis took place after data transformation of the teacher EI and student academic progress variables. As outlined below, data met all assumptions for the moderation analysis.

No significant outliers on continuous variables. Since student grade level and parent income level were not coded as continuous variables, the assumption of no significant outliers did not need to be checked. In regard to the variables of transformed teacher EI and transformed student academic progress, during the assumption testing for the Pearson’s r correlation analysis, the presence of significant outliers was assessed through the creation of boxplots (Figure E6). The three outliers identified on the transformed student academic progress variable were removed from the data set. No significant outliers were found within the variable of transformed teacher EI. Therefore, the assumption of no significant outliers was not violated.

Normal distribution of continuous variables. Since student grade level and parent income level were not coded as continuous variables, the assumption of a normal distribution did not need to be checked. In regard to the variables of transformed teacher EI and transformed student academic progress, during the assumption testing for the Pearson’s r correlation analysis, a normal distribution was assessed through the creation of histograms (Figure E8 and E9) as well as through the calculation of the significance value under the “Kolmogorov-Smirnov” test of normality (Figure E10). Results indicated that both variables were normally distributed.

Linear relationship of continuous variables. Since student grade level and parent income level were not coded as continuous variables, the assumption of a linear relationship did not need to be assessed. In regard to the variables of transformed teacher EI and transformed student academic progress, during the assumption testing for the Pearson’s r correlation analysis,
a linear relationship was assessed through the visual inspection of a scatterplot (Figure E11) and the calculation of large residuals. Results indicated that the variables did not violate the assumption of a linear relationship.

**Independence of predictor variables.** Tolerance values (Figure E12) were calculated for the independent variable, teacher EI, as well as for both potential moderating variables, student grade level and parent income level. All three tolerance values were above 0.95, indicating that almost none of the variance of any predictor variable was explained by the other variables. Therefore, the assumption of independence of predictor variables was not violated.

![Coefficients](image)

**Figure E12.** SPSS coefficient output (moderation analysis assumption test)