LEADING SCHOOLS WITH EMOTIONAL INTELLIGENCE: A STUDY OF THE DEGREE OF ASSOCIATION BETWEEN MIDDLE SCHOOL PRINCIPAL EMOTIONAL INTELLIGENCE AND SCHOOL SUCCESS

by

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Abstract

Measures of cognitive intelligence such as Intelligence Quotient (IQ) have long been utilized as gatekeeper measures for leadership placement within organizations. Universities and Colleges have created leadership degree programs which are often almost exclusively measures of a student's cognitive ability. The degrees conferred are often the "gatekeeper" measures for entry into a leadership position within an organization. However, leaders with analogous educational and professional backgrounds may experience different levels of success even when facing quite similar situations. Why is this? The answer may be found within a fairly new field of study known as Emotional Intelligence (EI). The purpose of this study was to explore the degree of association between EI and school performance. The first question addressed within this study dealt the degree of association between a middle school principal's Total EI score and school success. Secondly, this study attempted to focus on the specific elements of a principal's EI (Area and Branch scores) and the degree of association that those elements might have with school success. This research project rendered valuable information which indicated that various components of a middle school principal's EI level is closely related to school success. With this information school systems and school personnel may begin to recruit and promote throughout the principal ranks those principals that demonstrate high levels of EI. Furthermore, training programs may be developed to enhance EI in public middle school principals in n effort

to support higher levels of school success. Ultimately, this research indicated that the association between EI and school success could not be ignored and that additional study is strongly indicated.

Dedication

This dissertation is dedicated to my beautiful wife Reut. As I struggled she supported. As I complained she listened. As I became overwhelmed she lifted my spirits with laughter and love. As I neared the end of my PhD program she gave me a new son named Max. And herein…she gave me perspective on what is truly important. To the love of my life, I dedicate this work to you.

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Finally and most importantly, I need to thank G-d for guiding me through this portion of my life. It always felt hardest when I thought I could do it alone. But when I prayed and listened with my heart G-d allowed me to find the purpose and joy within in my work. Baruch Hashem.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Why is it that leaders with similar education, training, and work experience will often encounter very different degrees of organizational success when undertaking comparable tasks? This question has become a central focus to many of those involved with leadership development in the field of public education. Middle School Principals experience increasing pressures to address issues of higher standards and accountability, and are often faced with the task of providing for the academic needs of diverse student populations in an ever changing society. Middle School Principals must demonstrate extreme flexibility and an ability to adapt to rapidly changing environments. Many of these leaders have been asked to align their leadership methodologies to support often controversial federal and state mandated efforts such as the No Child Left Behind Act to enforce increased accountability through student performance on standardized measures (NCLB, 2001). Working in conjunction with issues of student academic accountability, Middle School Principals are also responsible for supporting the creation of a shared vision for their school's growth which includes input from teachers, parents, and community members.

It has become quite evident in recent years that Middle School Principals must be adept at incorporating both self identified and social emotional conception into a plan for school success. Research has demonstrated that such understandings can be directly linked to a leader's Emotional Intelligence (EI). EI is defined as a person's skill and ability to access intrapersonal understandings, interpersonal skills, adapt to complex

situations, to deal with stress, as well as a measure of overall general mood (Bar On, 1997).

Some leadership styles may be more appropriate than others in any given school environment. However, the skill to respond to rapid shifts in learning environments and the ability to effectively access emotional intelligences transcends the spectrum of Public Middle School leadership. Principals who are able to respond quickly and effectively to dynamic environments and who are able to implement the necessary changes have been most successful in the development of sustained and long-term growth in student achievement (Fullan, 2002). It was hoped that this study would provide insights into the degree of association between EI in public middle school principals and school success.

Statement of the Problem

The problem addressed by this study was to establish the degree between a middle school Principal's EI level and his school's success. Public Middle School Leadership increasingly calls for leaders who are adept at managing emotional influences from both internal and external points of view. Traditional leadership programs often focus on the delivery of a cognitively based set of skills which have been determined to be of operational value within an organizational environment (Heifetz and Laurie, 2001). In today's world however, traditional leadership and management training programs may not afford a leader all the tools needed to guide a school through an improvement process. A leader's ability to interact with others using a skill-set based within understandings of EI may greatly impact the overall learning environment. It has been estimated in previous

organizational studies that participant organizations can be divided into high or low performance classification, based only on *climate*, with 75% predictability (McClelland, 1998).

According to estimations, 20-30% of organizational performance can be linked directly to employee perception of the organizational climate. Research indicated that the leader's actions may account for as high as 70% of employee perception of the organizational climate (Goleman et al. 2002). The findings from studies such as this demonstrate the incredible influence of a leader's impact, not simply on employee perception, but on overall organizational performance derived from such perceptions. Leadership research has recently begun to consider the importance of a leader's ability to understand and work with emotion. It has become necessary to examine the degree of association between a middle school leader's ability to work with his own emotional understandings, and how these understandings interplay on various organizational levels to impact school success.

Purpose of the Study

The purpose of this study was to establish understandings of the degree of association between EI ability in Maryland Middle School Principals and their school's ability to meet success as defined by Adequate Yearly Progress goals (AYP). This study attempted to determine if there was a relationship between specific aspects of a Principal's EI (controlling for other variables within their school's demographic breakdown) which may be associated to success on standardized forms of assessment.

Research Questions

This research study sought to explore the degree of association between a Middle School Principal's EI and its relationship to middle school success as defined by specific criterion. The following questions guided this research project:

1. What is the degree of association between a principal's Total EI and middle school success in meeting AYP?
2. What is the degree of association between specific Areas or Branches of a principal's EI and middle school success in meeting AYP?

Significance of the Study

Answers to the research questions provided insights into possible areas for improvement of Middle School Principal leadership and administrative development programs. It was hoped that this study might offer guidance into the level of importance that a Principal's EI might have on overall school performance and which could serve to support the school improvement processes. Furthermore, the information gathered through this research project may be useful as a resource in future decision-making processes that take place at the state, district, and school specific level. EI was found to have an impact on school performance and it is reasonable to pursue avenues of

information dissemination on EI research to all parties invested in school improvement issues through educational and training programs.

Definition of Terms

1. *Emotional Intelligence.*

   Emotional Intelligence is defined by Goleman (1998) as: "the capacity for recognizing our own feelings, and those of others, for motivating ourselves and for managing emotions well in our relationships" (p. 316).

   Meyer, Salovey, and Caruso (2004) defined Emotional Intelligence as:

   > "the capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge and to reflectively regulate emotions so as to promote emotional and intellectual growth" (p. 197).

2. *Middle School Principal.*

   The chief administrative officer of the middle school, appointed by the School District, and licensed by the State of Maryland. The Principal is assigned as the school site director and is responsible for leading the school community and implementing educational plans.

3. *School Success.*

   Levels of success are defined in this study by a school's ability to "meet" or "not meet" Adequate Yearly Progress(AYP) criteria as defined by the aggregate

student scores of three Annual Measurable Objectives (AMO's) in Reading, Mathematics, and Attendance.

4. *Maryland School Assessment.*

   The Maryland School Assessment (MSA) is a standardized test that was designed by the Maryland State Department of Education to measure student proficiency levels in Mathematics and Reading content as presented in the Maryland Content Standards.

5. *Demographics of School Population.*

   The data compiled to record the school's percentage of students utilizing the free and reduced lunch program (FARMS) will be utilized to determine the socioeconomics within the individual schools. Ethnographic data was gathered by calculating the percentage of the population defined as minority (non-white) students.

6. *Adequate Yearly Progress (AYP).*

   AYP is a measurement utilized by the State of Maryland which tracks academic progress and which is used to make accountability decisions for schools and school systems. In order for a middle school to meet AYP it must meet all targets in the areas of reading, mathematics, and student attendance. A school that does not achieve AYP for two consecutive years will be identified as in the School in Improvement process (Maryland State Department of Education [MSDE], 2005).

7. *Title I School.*

   This program offers financial assistance to schools with high population of socioeconomic ally disadvantaged students. The purpose of this program is to

provide assistance for financially disadvantaged children to meet the required state academic standards (U.S. Department of Education [USDE], 2006).

Assumptions and Limitations

This study sought to determine the degree of association between a Middle School Principal's EI levels and the school's ability to meet AYP. It was assumed that the Maryland State Department of Education which is the Principal Administrator for licensing and certification has insured that any principal working at the Middle School level in the State of Maryland has satisfied the required academic and professional certifications and requirements to be placed in his/her current position as the principal of a public middle school. It was further assumed that the academic and training programs from which these principals received their administrative training have satisfied all requirements from a nationally recognized accreditation body and provided similar opportunities for professional development in this regard.

Of course, there are multiple factors that may affect a school's ability to meet AYP. A principal's cognitive abilities would have an impact on school success. Specific aspects of a principal's previous educational and training experiences may have affected school success levels. Other factors may include variations of socioeconomics within a school's student population often defined as high, middle, and lower class. Levels of parental involvement in the schools utilized for this study were unknown, and the extent

of parental participation in the school's organizational structures was not gathered. This study also did not address the Principal's staff on issues such as experience, education, or interest and/or motivation to be creative in helping student meet the required academic standards.

Depending on the school's operational systems, Principals had varying degrees of interactions with students, parents, and staff which could have had an impact on student success. Issues of support for the Principal were also not explored within this study. This includes support from state, district, and school based employees (such as numbers of Vice Principals in the school, descriptions of classroom teachers, and clerical staff). For these reasons, a focused description of the degree of association was sought between a Principal's EI and his school performance, with the intent of discovering overall patterns of connection. Such patterns were determined to exist. Further suggestions for additional and more extensive studies include some or all of the variables which were not controlled for but that were mentioned in this section, and which are presented in chapter five.

CHAPTER 2. LITERATURE REVIEW

This study focused on the degree of association between a Middle School Principal's Emotional Intelligence level and school success. The influence of EI on Middle School leadership affectivity is somewhat limited as EI research within the field of educational leadership is still in its earlier stages of development. However, initial research demonstrated a positive correlation between high levels of Principal EI and high achieving schools (Beavers, 2005). Furthermore, research on EI in other fields yielded large quantities of applicable data indicating that a leader who demonstrated deeper understandings of emotion was more successful than leaders who did not. It was hoped that the presentation of the following literature review might provide an overview of the current research being conducted in the field of Emotional intelligence and the applicability of such research to current work being conducted in public educational leadership development.

Emotional Intelligence Defined

The study of EI has been the focus of much attention over the last 2 decades. Daniel Goleman, a foundational researcher in the field of EI, established that EI can be divided into aspects of both personal and social competence. These competencies are divided into 4 domains of EI described as Self-Awareness, Self-Management, Social Awareness, and Relationship Management (Goleman et al. 2002). Goleman's work on EI has allowed for the development of a wide range of fields devoted to the study and use of EI as a central component of organizational structure, function, and success. Such

work has broadened understandings of EI and has allowed for the further evolution of understandings devoted to the adaptation of EI in a wide array of endeavors.

Additional research has determined that Emotional Intelligence can be defined as, "an array of emotional and social abilities, competencies, and skills that enable individuals to cope with daily demands and be more effective in their personal and social life" (Bar-On et al. 2003). Many researchers currently believe that EI might serve to act as a method of addressing specific aspects of organizational success not previously explored in studies of IQ or personality traits. Much of the current theory in EI research and study is attributed to E.L. Thorndike. Thorndike proposed that issues of "social intelligence" exist independently from issues of academic intelligence (Landy, 2005). Whereas IQ measures such as academic performances have traditionally been the "gatekeeper" to positions of management and leadership, EI speaks to successes beyond those waypoints often captured by traditionally based cognitive measures of intelligence. There has been a great deal of controversy surrounding the development of EI as a scientifically validated measure within the social sciences. However, current research is drawing powerful connections between EI and social experiences, which is creating a strong foundation for the further acceptance of this field of study (Mayer et al. 2004).

One of the strongest critiques against EI theory is that there are numerous constructs regarding the very nature of EI itself. Some researchers believe that the general nature of divergence within this field of study create difficulty in solidifying a "scientific" understanding of EI. This argument is often utilized as a framework under which issues of previous concepts of personality and IQ are often employed against the

validation of EI (Cherniss et al. 2006; Matthews et al. 2004). However, Goleman (2002) wrote:

> All leaders need enough intellect to grasp the specifics of the tasks and challenges at hand. Of course, leaders gifted in the decisive clarity that analytic and conceptual thinking allow certainly add value. We see intellect and clear thinking largely characteristics that get someone in the leadership door. Without those fundamental abilities, no entry is allowed. However, intellect alone will not make a leader; leaders execute a vision by motivating, guiding, inspiring, listening, persuading—and, most crucially, through creating resonance. The neural systems responsible for the intellect and for the emotions are separate, but they have intimately interwoven connections. (p.26)

Goleman's attempt was not to devalue cognitive intelligence. However, he did bring to light the importance of "internal characteristics" which could also be attributed to organizational success. Other researchers have specifically included aspects of personality and individual abilities into their understandings of EI. For instance, in a study of 103 college students it was found that a linkage existed between EI and the participants' personality traits. The connection between EI and personality traits was found to positively impact social relationships. Furthermore, those students who scored high on specific areas dealing with the management of emotional subscales on the Mayer, Salovey, and Caruso Emotional Intelligence Test experienced less negative interaction with members of the family and friends (Lopes et al. 2003).

As research in the field of EI increased over the past decade, it became apparent that there were connections between a person's ability to manage his or her own emotional understandings, and the result of such understanding, on the immediate environment that existed beyond the range of traditional personality or IQ measurement. Human emotional response has been linked to both the amygdala which appears to

control aspects of impulse emotion as well as the neocortex which is located behind the frontal lobe and serves as a control of the amygdala (Goleman, 1995).

Building on Goleman's original work in EI, researchers have explored reasons beyond cognitive ability to explain success. McClelland (1985) described the affect of personal motivation as it related to human behavior. He discovered that human behavior is often determined by the level of "strength" attributed to individual motivational inputs. Furthermore, his work demonstrated that incentive offered will greatly impact the decision making processes in human behavior. McClelland discovered that a combination of motive strength and chances for success could be used to predict the actions of a study participant. Internal processes of assigning levels of motivational importance are a fundamental process for the further analysis of EI. A leader who is able to identify the motivators within himself and others will often find himself experiencing greater levels of organizational success than leaders who may be deficient in these areas.

"Outlook" or "mood" is also an important consideration for researchers wishing to explore issues of EI. Mayer et al. (1992) described "mood congruency" as the connection between a person's mood and his or her thought processes. Mood is often defined through the application of emotional states such as sadness, fear, anger, and happiness. However, the study of mood has impacted EI research as it has become evident that mood management can directly impact the perceptions and actions of study participants. Various studies on mood have been utilized and incorporated into the construction of the current EI research theory and methodology (Mayer et al. 1991).

Another area of study from which EI researchers have drawn, is the exploration of emotional regulation in the workplace. This topic is commonly referred to as "emotional

labor." Emotional labor has been subject to much of the same criticism as EI research because of the lack of a solid and controlling framework to guide the research (Grandey, 2000). The use of past research within the field of emotional labor has been a vital component in the development of EI theory and application to a wide array of work-site studies. Emotional labor studies deal with a person's ability to control emotions within a work environment, and the subsequent results of such control. EI expands on this field of study to determine levels of ability within individuals to manage and control both intrapersonal and interpersonal emotional inputs (Goleman et al. 1999).

EI tests can be used to measure a participant's ability to regulate his or her own emotional responses and understandings to a given social environment. Such tests have determined direct correlation between a participant's ability to regulate emotion and the quality of interaction within a social environment (Lopes et al. 2005). In two separate studies, it was determined that a higher score on a measurement test of EI could be used to predict both positive interaction with friends as well as members of the opposite sex. Specific aspects of the tests which focused on emotional management led researchers to conclude that there was direct correlation between EI and positive social interaction (Lopes et al. 2004).

A great deal of research indicates there is a correlation between EI and positive social interaction in a wide variety of environmental settings. However, some critics continue to question the validity of EI as a form of intelligence and associate findings to previous work dealing with understandings of personality traits or cognitive ability. Researchers have begun to answer such critiques by linking EI to many of the same theoretical foundations as other forms of academic intelligence and cognition. This

connection has yielded widely accepted methods for the testing and classification of EI within the parameters of "scientific study" (Van Rooy et al. 2005).

Construct Validity of Emotional Intelligence

The last ten years have seen a dramatic growth of interest in the field of Emotional Intelligence both in support and defense of its use as an "intelligence." One of the major criticisms of the research in EI is that there has been a large amount of disagreement to the actual construct of Emotional Intelligence as anything outside the realm of existing research in IQ or personality research (Daus and Ashkanasy, 2003). Critiques argue that much of what is proposed by EI researchers has already been identified within other cognitive or personality studies and that EI is simply another name for these attributes.

Also brought into question is the measurement validity of scales purported to establish one's own emotional management (self-reporting). Although the measurement of emotion within a given environment has proven valid in measuring a respondent's self awareness of emotion, it is uncertain whether or not this speaks to management or simply a cognitive awareness of proper emotional behaviors in a given situation (Freudenthaler, 2005). Are the respondents answers genuinely descriptive of their own attributes or are they simply responding with the answers that they are aware the will consider to be "correct?"

Specific theoretical frameworks have proven illusive and critiques of EI research has centered around beliefs that EI is nothing more than another view into personality

traits, does not meet accepted psychometric standards, and that there is no agreed upon method of measurement to control and guide the current research (Dause and Ashkanasy, 2003). This leaves EI proponents in a position where much of their work must be defended through a lens of differentiation from both IQ and personality trait measurement. This is a difficult task as much of what is attributed as human trait has already been associated with one or both of these previously accepted fields of study.

In an effort to differentiate EI from personality, Caruso, Mayer, and Salovey (2002) conducted a research study wherein 183 participants were administered the Multifactor Emotional Intelligence Scale. Besides measuring EI, this survey instrument measured career interests, personality, and social behaviors. The data was analyzed and it was determined that this measurement tool was not only valid, but that the measurement of EI existed independently from the measure of personality and other measures within the survey. Other studies have utilized EI measurement tools such as the MSCEIT (an ability based EI measure), and the EQi (a mixed model EI measure) to establish independence of EI from more traditional measurements of personality assessment. Each of these assessments also demonstrated independence from IQ or other measures of personality traits.

Researchers believe that they have determined that EI existed independently from not only personality, but from cognitive ability as well (Livingstone, 2005). One way in which some proponents of EI have answered criticism of the research is to base their EI measurement in an "ability" framework. The Meyer, Salovey, and Caruso, Emotional Intelligence Test (MSCEIT v.2) has received the support of some of the leading researchers in this field as a measurement of emotional problem solving ability which

exists independently of participant personality and IQ (Daus, 2005). The application of EI to the field of Organizational Development has greatly increased the intensity of debate regarding the scientific validity of EI.

Opponents have argued that opportunistic scientists have transitioned to a "consultancy mindset" and sacrificed construct validity for the advancement of an invalid measurement of emotional impact on a given environment. Proponents agree that there are EI researchers who have improperly based their work on unstable theoretical frameworks, but that the overall disestablishment of EI is unjust as the majority of EI research is based within "solid science" and validity of the independence of EI as an emotional problem solving measurement has been validated (Ashkanasy, 2005). In recent years EI has been utilized in various fields in an effort to increase success and it has enjoyed wide acceptance in a myriad of research and "real-world" applications.

Fox and Spector (2000) determined that both IQ and EI were contributors of success in interview performance and job success. However, when emotional variables were taken into account, those that demonstrated a more developed ability to manage emotion encountered more success in both the interview process and work success outcomes. The emotional ability speaks to that which does not reside necessarily on an applicant's resume'.

In studies where life satisfaction based upon personality experienced variance, the application of EI scales could predict life satisfaction levels beyond the traditional measures of personality (Gannon, 2005). Other studies have taken measures to control for traditional psychological measures of individual personality applied to levels of participant health and well-being. It has been determined that EI impacts the health and

well-being of the participants independently from these measures of personality (Shulman, 2006).

The debate over EI as an independent measure above and beyond IQ and personality continues to play out in the field of Social Science and Organizational Development. However, the body of research in defense of EI research speaks highly to the independence of EI as a measure of one's ability to utilize emotional understandings to influence an environment; and which exist independently from IQ and personality.

Measurement of Emotional Intelligence

The issue of measurement has been at the heart of the debate over the construct validity of EI from the outset. Critics describe research wherein EI could not be demonstrated to describe any level of variance in the research outcomes beyond other methodologies employed to measure cognitive intelligences (Amelang, 2006). Others have discounted the claims that social competencies may better predict individual behaviors than traditional measures of academic measures and IQ levels (Barrett and Depinet, 1991). Ultimately, critics of EI claim that the construct of EI measurement theory and methodology is too broadly based and incorporates several different aspects of human psychological study which have already been identified as personality and IQ (Petrides, 2000).

However, there is overwhelming support in the research literature which supports the construct validity and measurement of EI as method of establishing an individual's ability to comprehend and manage emotions in such a way as to positively affect their

environment. In this section, various EI measurement tools are reviewed and their individual strengths and weaknesses are discussed.

Joseph Ciarrochi and John Mayer published a conversation in which they discussed one of the major divisions within the practice of EI measurement in current research (Ciarrochi and Mayer, 2005). EI measurement tools are generally associated with either ability based measurement or self-reported measurement methodologies. Mayer, a proponent of the criterion, or ability based measurement methodology argued that instruments that measured a respondent's ability to utilize emotionally based problem solving techniques as a form of intelligence were far superior to self-reported measures which focused on a respondent's own perceptions of emotional response. Mayer stated however, that he supported the self-report measurement method in certain cases where individual perspectives might garner information on an individual's personal emotional state within a given situation.

Ciarrochi et al. responded that on a case-by-case basis, self-perception measurements of EI can be more useful than ability-based measures as they will enable researchers to garner information not accessible through the application of ability based measurement model. Ciarrochi proposed the following as a method of distinguishing between ability based and self-report methods of measuring EI:

> I think it is crucial to find ways of talking about emotional intelligence that make things clearer, rather than confusing the issue. I therefore propose we distinguish between two related phenomena, "emotional intelligence" and "emotionally intelligent behavior." Emotional intelligence refers to people's ability to process emotions and deal effectively with them. EI refers to people's *potential.* In contrast, "emotionally intelligent behavior" refers to how effectively people actually behave in the presence of emotions and emotionally charged thoughts. Simply put, emotionally unintelligent behavior occurs when emotions impede effective (value congruent) action, and emotionally intelligent behavior occurs

> when emotions do not impede effective action, or when emotions facilitate effective action. Emotional intelligence (as an ability) is one set of processes hypothesized to promote emotionally intelligent behavior. (p.67).

For purposes of clarity, discussions in this section will, from this point forward, be described as measurements of "ability" or "self-report." After careful examination of the literature, it became evident that a commonly utilized method for measuring ability based EI is the Mayer, Salovey, and Caruso Emotional Intelligence Test (MSCEIT). This measurement tool was designed to measure four separate branches of the respondent's EI (Mayer, et. al, 2003). Mayer and Salovey developed the Mayer-Salovey 4 Branch ability model as a way to operationalize EI within a hierarchical structure (Mayer and Salovey, 1997). The Mayer-Salovey 4 Branch Model is designed as:

1) Total EI
    a) Experiential Area EI
        i) Perceiving Branch EI
        ii) Facilitation Branch EI
    b) Strategic Are EI
        i) Understanding Branch EI
        ii) Managing Branch EI

Figure 8 in the appendix provides a visual depiction of the hierarchical nature of the 4 Branch EI model.

The first area discussed were those aspects of EI that deal with Experiential abilities. This area was bifurcated into two subsequent branches which addressed both the perception of emotions as well as the facilitation of thinking in an organizational

setting. The Perceiving and Identifying Emotions Branch of EI is a measurement of a person's ability to understand how other members of an environment are feeling. The other component of the Experiential Area score of EI is the Facilitating Branch of EI. This Branch of EI is defined as a person's ability to produce emotional responses to certain situations within an environment and then to reason using those emotions. The second Area addressed the respondent's ability to think strategically from an emotional perspective.

Again, a bifurcation leads to two subbranches. The first branch addresses the respondent's ability to understand emotion. This Branch deals with more complex emotional inputs and a person's ability to link one emotion to another. The second Branch addresses the ability to manage these emotions. This Branch deals with the management of emotions in one's self as well in others (Mayer, et. al, 2002). For the remainder of this review, the MSCEIT will be used synonymously with the term "ability-based" EI measurement within the Mayer-Salovey 4 Branch Ability model of Emotional Intelligence.

A review of the literature revealed several commonly utilized measurement tools utilized to gather self-report data for use in EI research. These included the EQ-I, ECI, SEI, and the Ei360. All of these self report measures are based upon Daniel Goleman's (1995) model which described the 4 components of Emotional Intelligence (described as Emotional Quotient). These self-report measurement tools addressed issues of self-awareness, self-management, social-awareness, and relationship management. As with the ability-based measures, one measurement tool reappeared repeatedly throughout the EI research literature. This measurement tool was the Bar-On EQ-i, developed by

Reuven Bar-On as a measure for self-reported emotional and social intelligences (Bar-On, 1997). This measurement tool produces an overall EI score based upon 15 subscale scores. This measurement tool is widely accepted and utilized extensively to gather EI self-perception data. Therefore, for the remainder of this review the Bar-On EQi will be used synonymously with the term "self-reported" EI measurement.

The division of EI measurement into both ability based and self-report measurement tools do not negate issues brought up by critics of the current EI measurement. The debate as to what specifically is measured by the individual measurement tools reappears when comparisons are made even within the individual categories of ability based measurement tools. For instance, a comparison of the MSCEIT and another ability based EI measurement tools determined that issues such as openness and extroversion where not significantly linked to the MSCEIT survey design (Warwick, 2003). It is therefore incumbent on the researcher to take great pains to fully define his research in an effort to determine the most appropriate measurement tool.

In response to critiques of the MSCEIT, the survey's authors described a validation process wherein 21 "emotion experts" were asked to check the reliability of their EI measurement tool (Mayer et al. 2003). The responses of these experts were compared to a general population survey to check for correlation. It was determined that there was variance in response validity depending on whether the MSCEIT was administered to either an "expert" or "general" participant population. The validity for the expert application was determined to be .91 for expert and .93 for general consensus scoring.

It was determined that "reasonable reliability" existed which supported the overall theoretical design of the MSCEIT. However, Palmer et al. (2005) utilized a sample of 431 participants from a general population in an effort to determine the validity of the MSCEIT version 2.0. The researchers concluded that although the general EI evaluation of the MSCEIT was found to be reliable as a "total score," some of the subscales indicated a low level of validity. The authors concluded that the MSCEIT did not offer enough subscales to adequately measure the EI levels of each branch level factor.

In an effort to determine the validity of the self-report method Tett et al. (2005) conducted a review of 33 peer reviewed studies which utilized self-report methods for gathering EI levels of the participants. The authors controlled for various personalities based variables and determined that EI could be measured through the use of self-reported measurement and could be considered a distinct form of measurement on its own. In an effort to correlate self-reported EI ability to the ability based MSCEIT, Bracket et al. (2006) created a self report that would follow similar framework designs of the MSCEIT. In three separate studies it was determined that there was very little correlation between self-reported and ability based measurements of EI. Goldenberg et al. (2006) conducted a similar study to check for convergent validity between the MSCEIT and a self-report measure of EI. Again, the authors of this study determined very low levels of correlation between ability based measurement and self-reported measures of EI. This study did not invalidate either measure of EI, but did determine that the ability based and self-reported based measures of EI determine quite separate aspects of EI. Self-reported measurements of EI were associated with the respondents' coping

skills and styles while the ability based MSCEIT demonstrated a connected relationship with specific aspects of participant demographic data (Goldenberg et al. 2006).

Researchers began to find that as various EI measurement tools were evaluated the validity of the EI measurement tool was highly dependant on the desired component of EI that the researcher wished to gather. For example, while IQ has traditionally been used to predict academic success in students, the EQi was found to have almost no correlation with academic achievement. However, cognitive ability and personality demonstrated direct connections to academic outcomes (Newsome et al. 2000). Another study indicated that neither self-reported or ability based measures of EI demonstrated correlation to academic ability. However, MSCEIT correlated highly with cognitive ability. The EQ-I also failed to predict overall academic success but correlated highly with a large number of personality traits (O'Connor and Little, 2003).

Fineman (2004) discussed the implications of what he labeled "boxing in emotions." He cautioned against the use of EI as a method of reducing emotions into defined forms of measurement and numerical data with an organizational setting. Ciarrochi and Mayer's discussion of EI may offer EI researchers an ability to differentiate between the self-reported and ability based EI measurement methodologies (Ciarrochi and Mayer, 2005).

The following was offered by Ciarrochi and Mayer and is consistent with the findings of this literature review on EI measurement theory:

> 1. There are a number of discretely different kinds of data. Each kind of data reflects different mental (or, in the case of observers, observational) processes. Moreover, each kind of data can contribute different to understanding a phenomenon.
>
> 2. If you want to look at mental potential around emotional intelligence, then criterion-report (that is, ability measures) are best; self-judgment measures are weak criteria at best.
>
> 3. Self-judgments measure just that – a person's self-efficacy in regard to emotional intelligence, as distinct from their actual emotional intelligence.
>
> 4. If you want to understand how a person is feeling inside, then, self-judgment measures are best.
>
> (Ciarrochi and Mayer, 2005)

EI Connections to Health and Well-Being

Employee health and well-being have been areas of great interest to Organizational Design researchers from the outset of EI development. However, work in this field too, has been rife with debate on the question of whether or not EI is able to predict outcomes associated with employee health issues. As was found in the research on construct validity, there are wide ranging views and opinions as to the applicability of EI as a predictor for various aspects of organizational success. Studies have demonstrated varying degrees of support for EI as a method for the determination of

various aspects of employee health and well-being. Donaldson-Feilder (2004) found that while psychological acceptance (or the acceptance that control over an environment may not be within the participant's grasp) holds a positive correlation to both general mental health and physical well being. However, the findings from the 290 participants in this study indicated that EI had little connection to occupational health or physical well being. Furthermore, the author of the study stated that there may have been little connection to an employee's ability to consciously regulate his own emotions and overall workplace benefit.

In another study utilizing participant groups from both Canada and Scotland, Austin et al. (2005) found that EI related negatively to alcohol consumption and positively to the size of the participant's social network and overall life satisfaction. This study indicated that EI was closely linked to issues of the participant's overall network size, but aspects of personality correlated more strongly to the other variables in the study. Another study (Gerits et al. 2005) sought to explore the level of job "burnout" in nurses working with patients who had high levels of severe behavioral problems. The researchers found that while higher levels of EI in participants of this study indicated lower levels of occupational dissatisfaction, there was no indication that EI could be linked to issues such as absenteeism linked to illness or longevity of employment.

These studies lead to the conclusion that higher levels of EI may in fact serve to predict higher levels of employee health and well-being not simply based with psychometric measures, but also in actual physiological basis as well. This was demonstrated in two separate studies (Tsaousis, 2005) in which 577 participants answered surveys designed to collect information on both EI and general health. In the

first study, 365 participants answered questions relating to EI and general health status. In the second, 212 participants answered the same EI measurement questions and general health status, but also answered questions relating to their psychological health as well. Both studies shared a similar hypothesis which suggested that EI would be negatively associated with poor health. The second study also hypothesized that EI would be positively associated with behaviors consistent with good health. Both of these hypotheses proved to be true. The literature described several other studies (Ciarrochi and Greg, 2006; Saklofske, et. al, 2007) in which it became evident that the higher levels of EI could act as predictors for positive health choices and overall good health.

Exploring even more deeply into the ability for EI to predict health and well being Spence, et. al (2004) explored the relationship between EI and personal goal setting for "self-integrated personal goal systems." These researchers were interested in determining to what level the EI of their study participants affected their abilities to develop personal desires for change. It was found that the two specific subscales of mood regulation and abilities to self-integrate goals were predictors of positive emotional well-being. Furthermore, those participants who scored higher in these subscales of EI were also better at developing more defined goals, and were more able to self-integrate these goals into an overall position of health and well-being.

Measurement Validity of EI to Health and Well-Being

Within the literature there are numerous studies that have demonstrated the ability of EI to act as predictors for selected criteria of success. However, many of these

researchers have also indicated that, while there have been validated findings linking EI to these points of success, there is a need to further explore the numerous variables which may affect study outcomes (Austin et al. 2005; Gannon, 2005). However, the overwhelming research consensus demonstrates that there is a definite correlation between EI and emotional well-being which exists outside the traditional measurements of cognitive intelligence or personality traits (Ciarrochi, 2006). Much of the debate regarding the validity of EI measurement as a correlate to success circles around the topic of "soft sciences." "Mood" and "feeling" are often difficult to define and there have been numerous attempts to create an overarching framework to contain concepts such as these. Researchers such as Schutte et al. (2002) have determined that those with higher EI will have an increased ability to regulate and understand the emotional inputs in their environment. Therefore, they conclude that emotional well-being is dependant on such concepts as mood and feeling. It was also determined that mood and self-esteem levels will also serve to predict EI levels.

There have been many attempts to differentiate EI from other forms of psychometric testing which may at times parallel (and possibly overlap) EI research methodology and decrease the validity of EI as a measurement tool. In a study utilizing Bar-On's trait based EI measurement tool EQ-i, comparisons with other psychometric measurement criteria were conducted (Day et al. 2005). The researchers concluded that trait based EI measurement only accounted for variance in two of the five EQ-i subscales. EI researchers continuously call for further study based within the discrimination of EI and other methods of psychometric measure.

One method of strengthening the construct validity of EI measurement is through the application of emotion to the actual physiological well-being of research participants. Schneider's study (2005) explored the relationship between EI and a participant's ability to predict his own physiological status. Participants were asked to complete a MSCEIT measure to determine their EI levels. The researchers then attempted to discover if those with higher EI levels were more able to monitor their own internal autonomic nervous system activity by identifying their heart rate levels. It was determined that higher EI levels could not be reliably related to an ability to identify specific heart rates. However, there were specific aspects of autonomic nervous system activity which were more acutely perceived by participants with higher EI levels. Although there is disagreement in the research community regarding the differentiation of EI from other forms of psychometric measurement, it has been demonstrated by research such as Schneider's that emotion correlates directly to both psychological and physiological well-being.

Stress Management and Emotional Intelligence

The relationship between EI and stress management, and the impact this relationship has on overall health and well-being has been a central theme in recent EI research (Salovey, 2002; Graves, 2005; Slaski, 2003). Stress impacts individuals' perspectives at a variety of levels. Global events such as war, political strife, and terrorism have been shown to affect stress perceptions at a societal level. These large and overwhelming stresses are acutely felt by individual members within a society and can have a direct impact on the lives of individual citizens (Hartley, 2004).

Other studies have demonstrated the acute ability stress to negatively impact an individual's environment (Quebbeman, 2002). Whether taken from a macro-environmental or micro-environmental perspective, EI researchers have attempted to discover relationships between a person's EI level and an ability to manage stress and stressful situations. There is a plethora of research describing the link between EI and stress management, as well as the affect such management might act as a predictor for an individual's overall psychological and physiological health and well-being.

In an example of a study that examined the relationship between EI and its psychological impact, 158 college freshmen were assessed for both EI and stress (Gohm, et. al, 2005). It was determined that EI was useful for some members of the participant population in their ability to rationalize and reduce stress; but for others, EI was factored as non-important or unused. Other studies (Nikolaou, 2002; Quebbeman, 2002) determined much stronger relationships between an individual's EI level and reported stress levels.

These studies determined that individuals who demonstrated an increased ability to comprehend the emotions within their environment were more able to manage stress. Issues of overlap with personality have also been explored to differentiate between an individual's EI level and those aspects of personality which might also relate to stress management abilities (Matthews et al. 2006). It has been determined that although there is a convergence between EI and personality with regard to an individual's ability to manage stress, EI can be differentiated from other forms of measurement to predict isolated abilities for stress management.

Organizations utilizing stress management programs have demonstrated how the address of workplace stress on the individual may affect the health and well-being of its employees (Kagen, 1995). Additional studies have demonstrated that organizations which implement stress reduction training programs are at an increased advantage to predict overall increases in employee health and well-being (Slaski, 2003). Such research indicates that when individuals within organizations are able to identify their emotional responses to stressful situations, there are advantageous results for the organization as a whole.

Organizationally, there are specific emotional responses that appear to be advantageous for increasing success and productivity. Through the application of emotional competency to these organizationally desired emotional responses, it has been determined that individuals who demonstrated higher levels of emotional competencies were more able to produce organizationally desirable emotional responses (Giardini and Frese, 2006).

As in other cases of EI research there is crossover between traits commonly associated with personality such as general mood. Mood has been demonstrated to impact an individual's ability to perceive emotional responses and may impact environmental interactions (Gohm, 2003). However, there is a general agreement in the research community that EI is directly associated with an individual's ability to manage emotional responses which leads to increased predictability for success and which also exist independently from other methods of psychometric measurement (Ashford, 1995).

Further research indicates that individuals with higher levels of EI are more able to identify the emotional status of assessing the emotional status of others (Engelberg,

2004). This speaks directly not only to an individual's ability to self-manage stress, but to the possibilities of those individual identifying stressful emotions in others. Through the development of stress reduction programs that facilitate stress reduction training, members of the organization with higher levels of EI might be utilized as key members of organizational growth initiatives (Kagen, 1995).

The strength of an organization can be greatly increased through the application of training programs which include EI skills. Research has determined that organizations which have implemented such programs have demonstrated increased trust and individual contribution (Jaine, 2005; Jordan and Troth, 2004). A central theme threaded through a large majority of the literature on EI's effect on health and well-being is that higher levels of EI have most often correlated positively to good health and negatively to physically and psychologically destructive behaviors.

Emotional Intelligence and Leadership

Emotional Intelligence plays an important roll in positive leadership within an organization. Goleman (1998) described leaders best suited to effect change within an organization as having an ability to recognize the need for change, and who are able to remove barriers. These leaders will challenge the norms of behavior and enlist the help of others to facilitate the change process. Finally, these leaders will be effective at modeling change behaviors for others to follow. Of course, emotion plays a large part in how a leader will demonstrate these competencies.

There are four major aspects of Emotional Intelligence which most influence positive leadership outcomes and will lead to positive organizational outcomes. First among these is the leader's ability to appraise and express emotions within his organizational environment. Secondly, a leader must utilize understandings of emotional dynamics to enhance cognition and facilitate the decision making process. Next, a leader must have intricate knowledge of the emotional processes of himself and the members of his organization. Finally, leader will need to manage emotion effectively (George, 2000). This is not to say that EI should be considered a "leadership style." EI serves to facilitate the modification of existing leadership styles and has been demonstrated to be useful in the modification of leadership styles to address the individual needs of the organizational members (Moss, 2006).

Emotional Intelligence should also not be confused with cognitive intelligence as an enhancer of effective leadership within organizations. Judge et al. (2004) explored the relationship of cognitive intelligence on leadership effectiveness. This study determined that there is a considerably lower correlation between intelligence and leadership effectiveness than was previously expected. Conversely, Groves (2006) conducted a study in which 108 senior organizational leaders were asked to complete a measure of emotional expressivity and which also gathered organizational change data as well. 325 of their subordinates were asked to complete evaluations which rated their leader's level of visionary leadership, leadership effectiveness, and ability to bring about organizational change.

It was determined that there were high levels of relationship between a leader's emotional expressivity and visionary leadership. It was further demonstrated that those

leaders who were most capable of emotional expressivity and leading with vision were also responsible for the highest levels of organizational change (Groves, 2006).

Emotional Intelligence and Transformational Leadership

Some research demonstrates that while transformational leadership acts as a predictor of positive organizational outcomes, EI may have little relationship with transformational leadership. In a study utilizing 2,411 organizational employees who had been administered the Bar-On EQ-I, little connection was found between EI and desirable outcomes within an organization or with EI's connectivity to transformational leadership Brown et al. (2006).

Other research has been conducted to establish further understandings of the relationship between emotion and transformational leadership. Küpers (2006) attempted to explore the impact that emotion might have on transformational leadership. The author analyzed the Multifactor Leadership Questionnaire (MLQ) which operationalizes transformational leadership. The author then applied EI theory in the creation of a framework which was then bound to specific foundations of transformational leadership. The ultimate findings were that both transformational leadership and the MLQ do not incorporate emotional competencies in their methodologies. Küpers described this as fundamental weakness in the MLQ and transformational leadership research.

Gardner (2002) however, discovered a direct correlation between transformational leadership and EI. In this study, the author utilized the MLQ with 110 senior level managers. As was predicted, those managers who were identified as "successful"

demonstrated high levels of transformational leadership ability. However, where Brown (2006) found little relationship between EI (as measured by the EQ-i) and transformational leadership, Gardner was able to establish significant relationships between EI and transformational leadership.

It was found that increased EI acted as a predictor for transformational leadership. This discrepancy within the research findings may be linked to the debate about self-reported and ability-based EI measurement. It may have been more appropriate to utilize the MSCEIT if the researchers desired to measure the actual emotional abilities of the research participants. Research has determined that there may be significant variance within leadership self-perceptions of EI and transformational leadership abilities and the actual ability levels of the participants (Barbuto, 2006). Although there are disagreements in the research as to the actual relationship between EI and transformational leadership, there is a large body of research which supports the theory that EI acts as a predictor for transformational leadership effectiveness (Mandell, 2003).

Emotional Intelligence and Management

The implementation of EI measures within organizational settings has been demonstrated to be positively related to "effectiveness" within both leaders and followers. However, the literature also demonstrates that EI frameworks require a great deal of additional study as there are areas of disconnect between various research findings and the practical application of EI to a generalized organizational system (Zeidner et al. 2004). EI and more generalized concepts of emotion are of interest to managers as they

hold promise for practical applications to a wide variety of organizational structures including HR, performance assessment, and training programs (Ashkanasy and Daus, 2002).

EI has demonstrated immense potential in redirecting management effectiveness in the domains of staff performance, organizational productivity, and human resource strategy. Research demonstrates that organizations undergoing significant change tend to be more successful if their management team includes members with higher levels of EI (Chrusciel, 2006). Implementation of EI strategy on organizational change systems has been proven effective in a wide variety of settings, but many authors indicate that caution is required prior to any implementation processes (Ashkanasy and Daus, 2002).

Management in a crisis situation is at times viewed as a crucible in which the true metal of a manager might be determined. However, traditional management training programs may not fully prepare future organizational leaders because the role of emotion is often discounted in a corporate setting. It has become increasingly clear that the decision-making processes, especially in times of crises, are often guided by what is commonly described as a "gut feeling."

Research has determined that this "gut feeling" (or action through intuition) is highly dependant on emotional responses to one's perceived environment (Sayegh et al. 2004). Recent studies have determined that managers must be attuned to the organizational dynamics which are intricately connected to emotion. Leaders, who are more adept at managing their own emotional responses, and those within the social system in which they function, will meet with greater success and less employee resistance to change (Hughes, 2005).

In a study of 212 participants working in high stress medical environments, Nikolaou (2002) found that those that scored higher on an EI questionnaire demonstrated a lower score on the ASSET (a stress level measurement tool). Interestingly however, the study also determined that besides a negative correlation between EI and occupational stress there also exists a positive correlation between EI and job loyalty. This study indicated that management might facilitate organizational growth through the development of EI training programs both to reduce occupational stress as well as to increase employee loyalty to the organization (Nikolaou, 2002).

Another area within the literature which indicated EI could serve as a resource for management utilization was within the concept of problem solving activities. In a study of three hundred and fifty participants divided into 108 teams, individual and team problem solving activities were initiated. Participants were administered a measurement tool to gather their EI levels. The authors of the study predicted, and were correct in hypothesizing that participants scoring higher in EI would be more effective at problem solving than the lower scoring participants (Jordan and Troth, 2004).

EI may be of particular interest to managers working with employees in a direct customer service role. Training programs which increase an employee's emotional cognition through EI development will offer the employee a greater ability to offer a more satisfactory customer service representation (Opengart, 2005).

The ability to create and share new information is vital to the success of any organization. EI also allows for the creation of an organizational structure where information travels mechanistically between leaders and followers. Senge (1997) described this as a "learning organization." The literature indicates that management

should carefully consider the impact of EI on overall organizational development and that developing the EI of employees should be of primary concern (Emmerling, 2005).

Emotional Intelligence and Leadership Development

The application of EI to leadership development theory and methodology is a relatively new concept. However, the emotional implications of leadership training have long been accepted as a vital component of organizational function and change theory. Research has demonstrated that through the emotional connections often forged through coaching and mentoring relationships, both the leader and the follower benefit from reduced stress and higher levels of health and personal growth (Boyatzis et al. 2006). Peterson (1996) outlined a 5-step strategy that would foster positive coaching and mentoring relationships.

The strategy included the development of a relationship that would establish close partnerships, inspire a sense of commitment, encourage persistence, allow for the furthering of skills, and allow for the development of a more effective environment. Research demonstrated that building positive intrapersonal communicative skills allowed leaders and employees to separate personality conflict from conflicts based on organizational restructuring (Eisenhardt et al. 1997).

As the role of emotion is further developed within the organizational structure, it will become evident that organizational leaders will need specific EI development training to manage the complex emotional impacts discovered to play such vital roles in organizational change.

Undergraduate education programs have begun to attract the attention of researchers who are interested in examining the level of EI in a student population. One such study focused on students in an accounting program in an effort to determine specific EI ability. The author stated that, historically speaking, much of the focus in such educational programs has centered on the cognitive development of the student. However, in the light of recent research, the author suggested that EI plays a vital role in modern organizational structures and is a highly desirable component of employer interest. Following the administration of the MSCEIT, it was determined that the EI levels of these students might be of concern to undergraduate training programs. It was suggested that EI intervention training might be a valuable resource to be considered (Bay, 2006).

EI research has been applied to other fields of undergraduate study with similar findings. A large number of nursing education programs have developed curricula heavily weighed toward cognitive development and attainment of professional competencies. Some nursing education programs have included EI development in their curricula. However, Freshwater and Stickley (2004) argue that the concept of EI might not be fully understood by those implementing the curriculum and is little more than "rhetoric" with little training or developmental follow-through. They suggested inclusion of reflective learning experiences, modeling, self inquiry, and reflective writing and discussion to further strengthen the EI component of such a curriculum.

Teacher education programs have also been the subject of such research inquiry. The role of EI in education and educational policy requires a great deal more study, but initial research indicates that EI development is greatly lacking in both pre-service

educational training programs as well as teacher mentoring programs (Hawkey, 2006). In the face of current educational policy reformation efforts taking place in the United States, further research in this area may be required.

Researchers have also examined the role of EI in graduate level programs. Jaeger (2003) described the disconnect between current evidence which supports the value of EI in organizational development and the fact that few graduate training programs provide the training within their curriculum to support the development of EI in the student. A recent study examined the role of EI development within an MBA program through Weatherhead School of Management at Case Western University. Comparisons were made between different MBA cohorts to determine if EI and cognitive abilities could be more effectively developed. It was determined by the authors that such developments are quite possible in MBA programs, but not as the curriculum is currently designed. Holistic training programs were offered as a method of increasing the EI and cognitive abilities of such students (Boyatziz et al. 2002). Various other studies of graduate programs, that have specifically addressed the development of EI, have produced data suggesting that the inclusion of EI into graduate training programs may facilitate a growth of student EI (Latif, 2004).

Employers too are taking the initiative from current EI research and attempting to incorporate EI theory into their respective training programs. Researchers have determined that the development of EI training programs often allow employees to more effectively navigate the social and contextual clues of emotional response within an organizational setting (Clarke, 2006). Employment based training programs have been utilized extensively to increase behavioral efficacy in employees.

Conflict and stress management programs have been utilized for quite some time. Police officers patrolling urban housing developments were studied to determine the affectivity of conflict management training on their performance outcomes. Various conflict management techniques were presented to two control groups of officers, while a third group of officers received no additional training. The research indicated that the 2 groups which received additional training in conflict management (which utilized components of emotional management) were significantly superior to the group that received no additional training (Zacker and Bard, 1973).

Social-learning theory has been foundational in the development of workplace-based behavioral training development. In a study to determine the effect of interpersonal skill development training programs, 40 supervisors where randomly placed either in a control group or a training group. Results indicated that participation in the training program predicted higher performance and affectivity over those in the control group. Additionally, those supervisors in the original control group demonstrated similar and significant improvement in performance and affectivity which mirrored the original training group's results (Latham and Saari, 1979).

Other research indicates that training programs such as those described above may be unsuccessful if the intrinsic motivation for change is not addressed in the target employee population. Boyatziz (2006) utilized intentional change theory in a study to design a model for the development of the image or an "ideal-self" which allows for a deeper commitment on the part of the trainee and may lead to increased training program success.

The movement of knowledge and skill from the training setting to the workplace has also been of interest for quite some time. The design of training programs is at times, the central focus and the transferability of such programs to the workplace often came as a secondary consideration. Research indicates that the continuance of training initiatives must carry over into the workplace if the desired knowledge and behavior is to be maintained (and to avoid the re-adoption of the targeted negative organizational processes) (Marx, 1982).

Research indicates that employee EI can be increased through such workplace training interventions. Meyer et al. (2004) conducted a study in which health care providers were asked to complete the MSCEIT to measure levels of EI. A one-day EI training program was presented to the employees, with a reapplication of the MSCEIT as an exit measure. It was determined by the researchers that EI levels were higher following the EI training program than were initially measured prior to the training. This study supports Goleman's (2002) statement that unlike cognitive intelligence levels, EI levels may be increased through participation in EI developmental programs.

Emotional Intelligence and Job Performance

One of the largest areas of contention within the EI research community appears to relate to the impact of job performance. Some researchers have argued that the currently available data on EI as it relates to job performance may demonstrate a disconnect because it represents in fact emotional competencies which affect job performance. Abraham (2004) wrote:

> "As emotional intelligence is the composite of 27 competencies, and as the competencies themselves never have been tested separately to determine their ability to predict superior performance, it is possible that the weak relationship between emotional intelligence and performance may result from the suppression of effects of some competencies with little or no impact on performance by others."

Arguments such as this focus on EI's overall representation of composite emotional competencies without addressing those specific competencies which may actually be the catalyst for success. However, there is an overwhelming amount of research which supports EI's ability to predict success. Specific measurement tools such as the MSCEIT v.02 have been designed to incorporate emotional competency (ability based measurement) into reports of "ability branches" as well as the "general" EI measurement score. Researchers have found that an employee's ability to perceive his and other's emotions, to understand the implications of such emotions, and the ability to regulate and manage emotion as described by EI have a direct impact on job performance. Furthermore, current research provides evidence that EI exists independently from other forms of intelligence (Carmeli, 2006; Lam and Kirby, 2002; Rosete, 2005).

A study of 126 undergraduates was placed in stressful situations and was asked to accomplish mathematical problem solving and oratory presentations. It was found that the EI levels of these students positively predicted the performance of the assigned task within the stressful environment (Lyons, 2005). Research studies have even attempted to explore relationships between EI, an employee's sense of spirituality, and workplace performance (Tischler, 2002). There is great interest in "thinking outside of the box" to discover previously untapped areas for increased organizational performance.

Direct links between emotion and organizational performance have been established. In a study examining the relationship between a leader's mood and its impact on organizational productivity, researchers determined that the employees working under a manager with a positive mood were likely to experience positive moods. These employees also demonstrated more positive affective tone. It was ultimately discovered that leaders with positive moods supported a more cohesive work environment and expended a great deal less energy than did leaders with a negative mood, for similar results in productivity (Sy et al. 2005). Further studies have even determined that EI predicts positive increased task performance in specific areas as cognitive levels of intelligence decrease (Côté and Miners, 2006).

Not surprisingly, in a study of the predictability of EI to sales outcomes, (Rozell et al. 2006) determined that positive or negative sales productivity was significantly related to EI. The effects of psychologically based intervention programs have been the subject of research for many years. The overwhelming consensus is that psychosocially based, workplace training programs can significantly increase organizational effectiveness (Guzzo et al. 1985).

It should come as no surprise then, that with the increase in interest in the effects and predictive abilities of EI to increase organizational effectiveness, many studies have focused their attention on the effect of EI on leader/follower performance outcomes (Wong and Law, 2002). The fact that EI demonstrates the ability to identify and manage both one's own emotions as well as the emotions of others, allows for the utilization of such concepts as goal identification as a vital component of EI methodology, in an effort to improve workplace performance levels (Brett and VandeWalle, 1999).

EI Applied to Public Education

The purpose of this study is to determine the relationship between Middle School Principals' EI levels and student performance. At this point, research into the degree of association between EI and school success is still in its infancy. In recent months, various aspects of EI have been linked to teacher success within the public classroom setting and have been demonstrated to act as predictors for teacher career length (Justice and Espinoza, 2007). However, at this time, research on the affect of EI on public education is quite limited. Therefore, the final component of this literature review will focus on issues of both school reform and educational leadership development in an effort to create a foundation on which the EI research can be applied. There have been multiple research studies which demonstrate that traditional forms of leadership development may not fully prepare leaders for the required change management they will eventual face as they take control of their organizations. EI has been demonstrated to address a number of these deficiencies. (Dearborn, 2002)

Educational Reform

On January 8, 2002 President George Bush signed into action the No Child Left Behind Act (NCLB) that purported to create much higher levels of school accountability, to allow for more autonomy for States and Communities, to provide encouragement for proven educational methodology, and to offer parents more educational options for their

children (NCLB, 2002). A complete analysis of the NCLB goes well beyond the range of this literature review. However, a summative assessment indicates that the NCLB has been one of the major factors in recent history to impact educational reform efforts. Those reformation initiatives will be the central focus of the remainder of this chapter.

Research indicates that one of the greatest discrepancies between high and low performing school systems is associated with socioeconomic advantages and disadvantages (Anderson and Pellicer, 1990). Over the past 40 years, national funding has been allocated to subsidize additional responses to this economic discrepancy. The primary Federal program designed to support lower socioeconomic school systems fall under the Title 1 program. This program accounts for over 20% of the U.S. Department of Education's total budget. Title 1 and the NCLB have been closely linked to outcome based education (OBE) in the processes of educational reform. OBE is "goal defined" and is often the basis for legislation and policy implementation which guides the direction of educational reform at various levels (O'Neal, 1994). OBE is a major issue of debate within the topic of educational improvement and reformation efforts.

Issues of school violence in the light of the Columbine High School tragedy have prompted educational leaders to closely examine school and classroom climate. Specifically, there have been increased efforts to establish understandings of school social systems. Issues of classroom civility are of great interest to educational leaders as current research has linked student success to the educational environment at various levels (Kauffman and Burbach, 1997). Inner city schools are at particular risk for issues such as school violence. Programs addressing the needs of the economically disadvantaged students within inner city school settings have demonstrated an ability to

positively affect learning environments and have been linked to improvements in student academic performance (Stringfield, 1997).

Another factor which has been closely linked to the discrepancy of student performance within high and low achieving schools is that of multicultural and multilingual student population needs. Educational leaders have determined that multicultural and multilingual students require specific consideration with regard to the ongoing reformation efforts already underway for school improvement.

Successful leaders will be able to recognize cultural differences within aspects of opinion, viewpoint, attitudes, philosophies, values, and convictions (Peterson, 2004) and utilize such understandings to create more effective staff, student and community relationships within multicultural environments. Turner and Trompenaars' (2000) work on cultural intelligence described 6 dimensions of cultural diversity have been based on the measurement of six dimensions of cultural diversity. Their work demonstrates the need to adapt one's own perspectives to understand the perspectives of others within a multicultural environment.

Teacher education and preparation programs (Hollins, 1993) as well as school based multicultural training programs have been established to meet the various needs of the multicultural learners in public schools (Stringfield, 1998). These programs have been combined with other initiatives such as risk and resiliency programs to address the needs of students within adverse living conditions (Doll, 1998; Finn, 1989) in an effort to offer each student a greater chance for academic success.

Educational reformation efforts have also addressed the need for ongoing professional development for school staff. Bol et al. (1998) explored the effect of

professional development training programs within the educational system. The primary factors affecting the level of professional development within an educational system were identified a those constrained by financial implications, time, materials and equipment to support the training initiatives. Findings indicated that lower socioeconomic educational systems offered less effective professional development opportunities than other more financially stable educational systems.

When coupled with NCLB, OBE, and other ongoing school improvement initiatives, issues such as program funding come under very close scrutiny. Thiel (2005) identified the need for a well thought out plan for the establishment of school budgetary policy. The level of accountability has moved beyond student academic performance and curriculum. Educational leaders are being asked to prove the outweighing benefits of a particular initiative to expected student achievement with the associated costs of implementation. This environment of holistic accountability calls for the increased awareness and training of teamwork and interpersonal communication.

The sheer enormity of the educational organizational system in the United States is something to consider when planning for change. Dianis (2005) offered an evaluation of the 100 largest school districts in the country. In a single year (2001-2002) 27 of the largest 100 districts served the educational needs of over 100,000 primary and secondary school children. Furthermore, these school districts operated under a budget of $95 billion dollars, of which 5 of the largest school districts received 29%.

From an organizational development standpoint, the United States Educational System rivals any global corporation for size and financial expenditure. Leaders in the corporate world undergo dramatic change processes as they progress through the ranks of

leadership development stages which prepare them to take control of multi-million dollar organizations (Bennis, 2004). This begs the question, are educational leaders fully prepared to guide their organizations through complex and difficult change processes as educational reformation efforts continue?

Educational Leadership

The Principal

Again, EI research in public educational research is still somewhat limited. Research completed covers a wide variety of indicators of EI, which point to possible connections with educational leadership development. For instance, in their study which evaluated the relationship between Principal Leadership and student achievement in Seattle, Washington, Andrews and Soder (1987) determined that the gain in student test scores in both reading and mathematics were significantly higher in "strong-leader" schools.

The relationship between gains in student performance and schools with strong Principal leadership were even greater in high minority population schools. Even without direct student contact, it has been demonstrated that Principals directly impact student learning through direction and design of the overall learning environment and climate (Hallinger and Bickman, 1996). Ambert (1997) wrote that "Competent and empathetic school personnel is positive when problems exist, and a supportive and cooperative relationship is established with parents" (p.113)

Another study demonstrated the relationship between three specific variables related to Principal leadership in schools. Heck and Marcoulides (1990) found, in a study of 332 teachers and 56 school principals, that a principal's ability to implement school governance, to create a highly functional instructional organization, and to establish educationally enriching and supportive learning climates predicted significantly higher student levels of success than principals who were not. Other research has indicated that school-based variables such as socioeconomics and ethnic composition of the student body can significantly affect a Principal's ability to implement positive change initiatives for student success (Blank, 1987).

The literature has developed numerous definitions of "strong principalship." For example, Sergiovanni, (2005) described a four virtue model of Principal leadership that has been demonstrated to support reformation efforts in public education. The author presented the virtues of hope, trust, piety, and civility as cornerstones of effective Principal characteristics. A qualitative study in Mexico City and South Texas utilized a cross-cultural examination and comparison of shared perspectives on positive principal behaviors.

Educators in both Mexico City and Texas identified actions and values such as educational participation, clear and concise communication processes, the ability to plan for and utilize strategy in times of change, and a strong value system as important characteristics for a supportive and effective principal. Thomas and Inkson (2003) described various aspects of "cultural intelligence" as the knowledge to understand cross-cultural interaction, mindfulness when observing and subsequent interpretation of such interactions, and an ability to adapt one's own behavior.

Sternberg (2004) described his work developing a three component model for Principal leadership development utilizing the attributes of wisdom, intelligence, and creativity (WICS). The author described that good leadership is not necessarily innate, and can be developed to ensure successful educational leadership in public principalship.

The literature also provides evidence that successful principals understand the necessity of creating a climate and environment conducive to staff professional development. A case study of one specific principal included interviews with 125 teachers in an effort to garner information on the development of a learning community designed specifically for the needs of the staff. The principal employed a wide variety of approaches to meet the learning needs of the staff and was able to affect positive change for the staff and student body within the school (Zepeda, 2004). The corporate world has long understood the importance of sharing "best practice know-how." Evans et al. (2002) wrote:

> Increasing the sharing of know-how and best practice is another dimension of coordination of critical importance. With increasing competition and the importance of speed in responsiveness, reinventing the wheel can be ill-afforded. Some scholars have argued that the main competitive advantage of the global corporation is its ability to learn from its experience throughout the world. The experience in sharing know-how lays the foundation for more sophisticated systems of knowledge management that are immerging in both industrial and professional service firms. (p.321)

Effective educational leadership will also seek to include outside support in positive change efforts. For example, the Maryland Technology Academy (MTA) was established from a federal technology innovation challenge grant. The Maryland Department of Education partnered with Johns Hopkins University and Towson

University in an effort to develop a network to which educational leaders from across the state could turn for technological assistance and support (Wizer and McPherson, 2005).

However, there are still disconnects between student success and Principal leadership that must be addressed. (Ruebling et al. 2004) determined that four essential aspects of principal leadership needed address. The authors examined issues relating to commonality of curricular frameworks, alignment of curriculum to state and national standards, staff training and development with delivery of the curriculum, and student accessibility and incorporation of the curriculum as vulnerable aspects within educational systems.

Principals were tasked with providing opportunities for team building and teamwork, assignment of appropriate resources for curricular implementations, and ultimately establishing a climate of total staff accountability for the results of the educational delivery on student success. In order to be effective, educational leaders may need to consider removing barriers to intrapersonal communication if they hope to deal with problems that arise through change and reformation programs (Argyris, 1966). Principals must be able to find a balance between the creation of a nurturing and supportive learning environment for staff and students, while at the same time remaining accountable to increasingly demanding calls for higher student test scores.

Some researchers fear that the demands for accountability may lead educational leadership in the wrong direction away from the humanistic traditions of education, and possibly weaken the overall educational system as inappropriate leadership theory or methodology are introduced in a quest for ever higher student performance scores (McInerney, 2003).

The predicted relationships between EI and school performance are based upon the research and articles presented in this literature review. Leader and employee EI has been found to positively impact the overall mental and physical health and well-being of an organization (Austin et al. 2005; Gannon, 2005). Those with higher levels of EI are more effective at regulating and understanding the emotional implications within an environment (Schutte et al. 2002).

EI research has also demonstrated a positive relationship between high levels of EI and stress management (Salovey, 2002; Graves, 2005; Slaski, 2003). Leaders with lower EI levels are less able to manage stress within an environment and studies have demonstrated that detrimental results may occur (Quebbeman, 2002). Stress management is a major factor in the physical health and well-being of organizational members and is a predictor for overall organizational performance (Kagen, 1995; Slaski, 2003).

Overall organizational performance studies have determined that higher EI scores may act as overall predictors for organizational success and performance (Lyons, 2005; Tischler, 2002; Côté and Miners, 2006). The literature supports the following hypothesis:

1. Principals with higher levels of EI will have more successful schools.
2. Principals with higher levels of EI will be more supportive to staff which will translate to higher MSA test scores.
3. Principals with higher levels of EI will better serve students from a wide variety of socioeconomic and ethnic backgrounds.

As discussed at the beginning of this literature review, both critics and proponents of IE agree that there has been a wide definitional construct for EI. Again, one of the seminal researchers Daniel Goleman (1998) defined EI as: "the capacity for recognizing our own feelings, and those of others, for motivating ourselves and for managing emotions well in our relationships" (p. 316).

Meyer, Salovey, and Caruso (2004) defined Emotional Intelligence as:

> the capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge and to reflectively regulate emotions so as to promote emotional and intellectual growth (p. 197).

Although there are multiple definitions of EI, an earlier definition provided by Meyer, Salovey, and Caruso (1999) most closely approximates the foundational structure which guided the methodological design of this study:

> Emotional intelligence refers to an ability to recognize the meanings of emotion and their relationships and to reason and problem-solve on the basis of them. Emotional intelligence is involved in the capacity to perceive emotions, assimilate emotion-related feelings, understand the information of those emotions, and manage them (p. 267).

Controls

Two major issues that will impact school performance are lower socioeconomic and higher multicultural/ethnic populations within a school organization (Stringfield, 1997; Peterson, 2004; Turner and Trompenaars, 2000). Therefore, moderating variables were included in this study (figure 10). Other variables within the school administration, teaching staff, and student population may have impacted school success

as well. Some of these variables are discussed in Chapter 5 as recommendations for future research.

The significance of these variables was tested by using the significance of the increase in r^2 when the variable was added to the regression. Even though other variables may have impacted school success, the data analysis demonstrated that the model including controls for EI, FARMS and minority populations within a school provided high degrees of fit for the model. Inclusion of all variables affecting school success would have been beyond the scope of this study. However, consideration of these moderating variables should be included in future research.

CHAPTER 3. METHODOLOGY

The purpose of this study was to explore the degree of association between Emotional Intelligence (EI) and school performance. The first question addressed within this study dealt with the effect of a principal's Total EI level, and that level's ability to predict student and school success. Furthermore, this study attempted to focus on the specific elements of a principal's EI and the degree of association that those elements might have with school success.

Research Design

This study was based upon a correlational design. In an effort to gather further understanding of the degree of association between emotional intelligence of principals and the success of their schools, this study gathered the emotional intelligence levels from a sample of middle school principals in Maryland and assessed the levels of EI and it's relationship to Adequate Yearly Progress (AYP) ratings of the Principal's school.

The State of Maryland has developed Adequate Yearly Progress (AYP) indicators as prescribed by the NCLB legislation. Schools received either a "met" or "not met" rating with regard to AYP for the 2006-2007 school year. A school which met AYP was defined as successful while a school not meeting AYP was required to address deficiencies as prescribed by District and State mandates. AYP status was determined

through the analysis of three separate student performance factors within each school and which were defined by category as Annual Measurable Objectives (AMO's).

The first student performance category measured to determine AYP was the average of 6^{th}-8^{th} grade student performance on the math section of the MSA. The second student performance category measured was the average of 6^{th}-8^{th} grade performance on the reading section of the MSA. The third student performance factor was the 6^{th} -8^{th} grade attendance rates. Predetermined minimum levels of student performance were established by the State of Maryland and prescribed as AMO within each of the three performance categories for middle schools in Maryland. Failure to meet any of the AMO resulted in an overall "not met" AYP rating.

A respondent's total EI score was established through the analysis of 141 questions presented in the MSCEIT. These questions tested specific components of EI defined as Total EI, Area EI, and Branch EI scores. Specific "task" scores were produced by the MSCEIT as well, but were not utilized within this research study. This study attempted to determine if the schools of Principals who demonstrated higher levels of EI ability also experienced greater successes in meeting AYP.

A logistic regression was performed to determine the degree of association between a principal's EI level and his school's AYP rating for the 2006-2007 school year. The school's AYP status was compared to participant Total, Area, and Branch scores of the MSCEIT to determine if Principals having higher EI scores also have schools with greater success at meeting AYP.

Sample

A sample was taken from a population of public middle school principals in the state of Maryland. To be included in the sample, Principals needed to have been in their position for the entirety of the 2006-2007 school year. Although demographic data such as age, gender, and race were collected on the MSCEIT inventory, this data was not utilized within the context of this study. Permission to approach Principals within the State of Maryland was initially sought through the Maryland State Department of Education (MSDE); Leadership Development Division. MSDE indicated that permissions needed to be gained at the individual School District level. There are 24 school districts in Maryland with varying numbers of Middles Schools in each. There are 240 middle schools in the State of Maryland. School district Superintendent offices were approached for permission to contact Principals within the school districts and to solicit their participation in this research study. 12 school districts gave authorization to approach the public middle school principals within their school districts. These school districts varied greatly in size and number of middle schools within their areas of operation. The total response rate for all districts combined was 21% of all principals contacted for participation in this study. However, the average response rate on a district by district basis was 41% of the total district population.

Setting

This study took place in the State of Maryland. School districts across the state were contacted and authorization to contact middle school principals was requested. Individual principals from within 12 school districts chose to participate in this study. These schools and school districts offered services to a wide range of students within urban, suburban, and rural environments. To control for all environmental factors within the individual middle schools would have been beyond the scope of this study. However, controls were put into place for socioeconomic and minority levels within each school's population. As the MSCEIT was delivered in an on-line format, Principals were free to complete the test in a location of their choosing.

Instrumentation / Measures of EI and School Success

This study used EI as an independent variable and used AYP as the dependant variable. School performance data was collected from the Maryland State Department of Education, Report Card Website. EI data were gathered for this study through the application of the Meyer, Salovey, and Caruso Emotional Intelligence Test v. 02 (MSCEIT v.02). This survey is a 141 item instrument designed to measure the four branch model of EI based upon respondent skill and ability. The four branch model of EI is comprised of 1) the perception of emotions, 2) using emotions to facilitate thought, 3) understanding and interpreting emotion, and 4) the management of emotion. This test

provided an Total EI score, Area scores, Branch scores, as well as sub scores for each of the four branches tested.

Outcome measures

Student performance data was collected from the Maryland State Department of Education (MSDE), Report Card Website. MSDE compiled all annual assessment data from schools across the state. This website provided individual school AYP results, MSA assessment results, school attendance rates, and demographic data such as Free and Reduced Lunch Service (FARMS) and minority percent within the student population. School performance was broken down by each school district, and by elementary, middle, and high school levels. Data on MSA test performance as well as attendance and student demographics were available. AYP data was gathered from the 2006/07 school performance results. All school performance data was publicly available on-line (MSDE).

MSCEIT Validity

The MSCEIT v.02 offers four branches that correspond to perception, utilization, understanding, and management of the EI model. Scores for the MCEIT V.02 are reported at the total, area, and branch levels (Mayer et. al, 2002). Reliability levels for the MSCEIT v.02 were established for both "general and "expert" participants. For the

purposes of this study, the reliability reports will be applied from the general participant category. The total MSCEIT reliability was r = .91. Area reliability was reported as r = .86 and branch score reliability was reported as r = .86 Mayer et. al, 2002). Numerous studies have reported similar findings linking higher levels of EI to positive organizational performance.

The Mayer, Salovey, and Caruso MSCEIT User's Manual (2002) offered a breakdown of the MSCEIT v.02. The EI score reported by the MSCEIT can be interpreted as a total emotional intelligence score applied to either a "general" or "expert" population. All participant data gathered from the MSCEIT was scored under the “general population” category.

The MSCEIT allowed for the analysis of specific abilities within EI beginning with two separate categories described as Area scores. These area scores consisted of Experiential Emotional Intelligence (EEIQ) and Strategic Emotional Intelligence (SEIQ). Each of these area scores are further divided into two branch scores which each described specific emotional ability.

The EEIQ are composed of two branches which extended out to the Perceiving Emotions Intelligences (PEIQ) and Facilitating Thought Intelligences (FEIQ). Both PEIQ and FEIQ were gathered through the participants' ability to navigate two associated tasks for each grouping of survey questions. To gather PEIQ, respondents were asked to analyze photographs of faces landscapes, and abstract designs and to determine the degree and type of emotional influence is most prevalent

FEIQ is assessed by the Facilitations which ask the respondent to judge which emotions might best facilitate a given situation's cognitive tasks. FEIQ is also assessed

through the Sensations which test a respondent's ability to match an emotion to a physical sensation such as heat or cold.

The second Area of EI is defines as the Strategic Emotional Intelligence. Strategic Emotional Intelligence (SEIQ) is divided into two subcategories of intelligence as well. These are defined as Understanding Emotions (UEIQ) and Managing Emotions (MEIQ). As with EEIQ, The two subbranches of SEIQ (UEIQ and MEIQ) are split into two separate task abilities respectively.

UEIQ is determined by the respondent's ability level at determining Change and Blends within emotional contexts. The Changes Task requires the participant to determine specific emotional results from the intensification of a specific feeling. The Blends Task requires participants to attempt to identify the resultant emotion when two or more different feelings are combined

MEIQ is derived from both Emotional Management and Emotional Relations tasks. The Emotional Management require the respondent to judge the actions which would be deemed as most effective in bringing about a desirable outcome for an individual in a story. The Emotional Relations as participants to identify the emotional response to a given situation which might best allow for the management of another's emotions.

MSA Validity

The Maryland School Assessment (MSA) is a test of reading and math achievement. This test provides educators, parents, and the public valuable information about student, school, school system, and state performance. The MSA was designed with two purposes in mind. First, the State of Maryland needed an instrument which could be utilized to inform students, parents, and school staff what specific information students had learned and what information had not been gained. Secondly, the State of Maryland required an accountability tool in which specific school and curricular restructuring activities might be based if students did not achieve adequate academic growth. The MSA is administered to 3rd to 8th grade students in April and May of each school year.

The Maryland Department of Education's, Department of Accountability and Assessment were contacted for information on validity and reliability measures for the 2006-07 MSA examination. The Department of Accountability and Assessment indicated that the 2005-06 MSA examination were able to be applied to the 2006-07 MSA due to the fact that no major restructuring of the MSA had taken place. The scores for the MSA are divided into three sections.

Student performance in these sections are rated as basic, proficient, and advanced. The MSA Mathematics and Reading score data from 2005-06 (MSDE) indicated that the participant 7th graders (n= 67,836) 32.24% scored basic, 39.36 scored proficient, and 29.40% scored advanced. In an effort to determine academic achievement on a linear

scale factor analysis was used to determine reliability. The 3 sections of the MSA are all measured to determine whether a school has attained Adequate Yearly progress (AYP).

FARMS and Percent Minority

Free and Reduced Meal Services (FARMS) are offered to students whose families qualify under the guidelines established by the U.S. Department of Agriculture. These guidelines allow schools to determine which of their students come from families living below the Federal poverty guidelines (USDA). The percent of students within each school was utilized to determine the level of students within the population living at or below the Federal poverty line.

Although somewhat controversial, the statistics from the U.S. Department of Education demonstrate that the national averages of families with children in poverty were higher for Blacks, American Indians/Alaska Natives, Hispanics, and Native Hawaiians or Other Pacific Islanders (ranging between 20 and 30 percent) than for Whites (about 10 percent). Once again, research has indicated that school-based variables such as socioeconomics and ethnic composition of the student body can significantly affect a Principal's ability to implement positive change initiatives for student success (Blank, 1987). It was necessary to control for both of these variables in an effort to isolate the relationship between a middle school principal's EI and Middle school performance.

Data Collection

Multi-Health Systems Inc. (MHS), the publisher of the MSCEIT v.2 provided an on-line delivery survey format. Fifty surveys were created by the researcher and assigned specific codes for the identification of individual participants. Participants were invited to complete the survey both by e-mail and letter. MHS provided a secure data collection process with only the researcher having possession of the individual identification for the coded on-line files. EI scores were reported by the MSCEIT v02 as Total, Area, Branch, and Task EI scores.

Data Analysis

The following research questions guided this study:

1. What is the degree of association between a principal's Total EI and middle school success in meeting AYP?
2. What is the degree of association between specific Areas or Branches of a principal's EI and middle school success in meeting AYP?

The general analytic approach was logistic regression which was utilized to examine the relationship between Maryland schools meeting AYP (met or not met) and

the school principal's emotional intelligence. Logistic regression was used because the response variable is binary, which is to say that it can take on only one of two values. Logistic regression, like linear regression, is a member of the generalized linear model (GLM) family (McCullagh and Nelder, 1989).

1. What is the degree of association between a principal's Total EI and middle school success in meeting AYP?

The first analysis treated the total EI score, FARMS, and Percent Minority as continuous predictors. The school performance was reported by meeting either "met" or "not met" Adequate Yearly Progress (AYP). FARMS and Percent Minority were both used as continuous predictors throughout this analysis.

2. What is the degree of association between specific Areas or Branches of a principal's EI and middle school success in meeting AYP?

The second set of analysis used the two Area EI scores (Experiential and Strategic) that are the basis for the total EI score and are defined as "Area Scores." The second analysis also treated the two branches of Experiential EI (Perceiving Emotion and Facilitation Thought), the two branches of Strategic EI (Understand Emotion and Managing Emotion) in the same model as used in the previous analysis. FARMS and Percent Minority were both used as continuous predictors throughout this analysis.

The "goodness of fit" was analyzed through the Nagelkerke pseudo-R^2 statistic. A pseudo R-squared was compared to another pseudo R-squared for each of the

independent variables on the same data, predicting the same outcome. In this study, the higher pseudo R-squared indicated which model better predicted the outcome of school success in meeting AYP.

Ethical Considerations

Utmost care was taken to protect the individual identities of the studies participants. All survey data were coded to protect the identity of the participant, his school, and his school district. The records of the individual Principal participants that match each code will be secured in the researcher's private residence and were kept locked in a secure filing cabinet. No one besides the researcher of this study had access to any materials linking individual survey participants and their EI level data.

Individual school names were not used to describe any findings in this study. No identifying information was utilized for this study which described a specific school district or leader within that school district. No identifying information was utilized for this study which identified specific students within a specific school.

Principals who participated in this study were offered feedback on their MSCEIT performance as well as the findings of the relationship between EI and MSA scores. Recommendations for further personal development were offered based on the findings of the study. All files in the possession of the researcher linking specific students, staff, schools, or school districts to either MSA or Principal EI survey data were destroyed at the completion of this study.

CHAPTER 4. RESULTS

Logistic regression was used to establish the degree of association between a middle school principal's EI scores and school success. Logistic regression is used when the response variable is binary, which is to say that it can take on only one of two values. In this case, these two binary values were based upon whether a principal's school met, or did not meet AYP. Logistic regression, like linear regression, is a member of the generalized linear model (GLM) family (McCullagh and Nelder, 1989). These families share the following three components: 1) a random component for the distribution of the response variable, 2) a systematic component for the predictors, and 3) a link function that connects the random and systematic components.

The specification of a normal distribution for a binary variable (e.g., meeting or not meeting AYP) would lead to predicted values less than 0.00 and greater than 1.00. A more accurate specification for the random component is the binomial distribution.

$$\Pr(Y = 1) = \pi$$

$$\Pr(Y = 0) = 1 - \pi$$

The systematic component, or the predictors, are assumed to be additive.

$$E(Y) = \beta_0 + \beta X_1 + ... \beta X_p$$

Hence, a way was needed to link this systematic component to a random component that was bounded by 0 and 1 and that tended to have a sigmoidal shape in the population. The canonical (i.e., default) link function (Agresti, 1996) in this case is the logit also known as the logistic or log odds.

$$\eta = g(\pi) = \log(\pi/(1-\pi))$$

This leads to the following statistical specification of this generalized linear model:

$$\text{logit}\,(\pi) = \log\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta X_1 + ...\beta X_p .$$

$$Y \sim B(n, \pi)$$

The calculated coefficients are in log odd units. The predicted probabilities can be calculated using

$$\pi = \frac{\exp(\alpha + \beta_1 X_1 + \cdots + \beta_k X_k)}{1 + [\exp(\alpha + \beta_1 X_1 + \cdots + \beta_k X_k)]}$$

In linear regression, the interpretation is in terms of an additive increase in the response variable associated with a one-unit increase in a predictor variable; however, in logistic regression, the interpretation is in terms of a multiplicative increase in the response variable (Agresti, 2002).

The first analysis treated the total EI score, FARMS, and Percent Minority as continuous predictors. The resulting prediction equation was

$$\log\left(\frac{\Pr(AYP)}{1-\Pr(AP)}\right) = -4.401 + .066(Total.EI) - .034(Minority) - .036(FARMS)$$

Converting the natural logarithms to their corresponding odds ratio estimates resulted in the following equation

$$\log(\Pr(AYP)) = .012 + 1.068(Total.EI) + 0.967(Minority) + .0.964(FARMS)$$

Logistic regression for Total EI Score

Controlling for FARMS and the Percent Minority, a one-point increase in Total EI is associated with a 1.068 significant 1.068 multiplicative change in the odds of meeting AYP, $t(1) = 3.614$, $p = .057$ with a 95% confidence interval of (.998 , 1.143).

Model Fit and R^2 Test for Total EI Scores

There was quite obviously multicolinarity among the variables. There was concern that this could affect the confidence level of the regression coefficients. This concern was addressed by testing the significance by using the significance of the increase in the r^2 when the variable was added to the regression. The Hosmer and Lemeshow test results suggest that the model adequately fits the data, $\chi^2(8) = 10.214$, $p = .25$.

The Nagelkerke pseudo-R^2 statistic suggests that 47.4% of the variability in meeting AYP for these schools is associated with these three predictors. Comparing the fit for this model to one ignoring Total EI suggests significant improvement when including Total EI, $\chi^2(3 – 2) = (21.909 – 18.948)$, $p < .001$. Figure 1 below illustrates the increase in the predicted probability of meeting AYP as a function Total EI holding FARMS and Percent Minority constant at their means. (Figures 2 and 3 illustrate with similarly with respect to FARMS and Percent Minority). The results for the analysis are displayed in Table 2.

This data indicates that there is a significant degree of association between a middle school principal's Total EI score and school success in meeting AYP. For every 1 point increase in a principal's Total EI score, the odds of the school meeting AYP increased by .06%. The confidence level of this increase was very high at 95%. The data also indicated that while all variables in school achievement were not included in this research analysis, those variables that were included accounted for almost half of the variability. This data demonstrates that a principal's Total EI is a significant variable in school success.

Logistic regression for Area Scores

The second analysis used the two Area EI scores (Experiential and Strategic) that, when combined, compose the Total EI score. The same model as used in the previous analysis. The resulting prediction equation was

$$\log(\frac{\Pr(AYP)}{1-\Pr(AP)}) = -3.849 + .054(ExpEI) + .009(StratEI) - .038(Minority) - .036(FARMS)$$

Converting the natural logarithms to their corresponding odds ratio estimates resulted in the following equation:

$$\log(\Pr(AYP)) = .021 + 1.055(ExpEI) + 1.009(StratEI) + .963(Minority) + .964(FARMS)$$

Experiential EI Area Score

Controlling for FARMS, Percent Minority, and Strategic EI, a one-point increase in Experiential EI is associated with significant 1.055 multiplicative change in the odds of meeting AYP, $t(1) = 4.111$, $p = .043$ with a 96% confidence interval of (1.002 , 1.111).

This data indicates that there is a significant degree of association between a middle school principal's Experiential EI score and school success in meeting AYP. For every 1 point increase in a principal's Experiential EI score, the odds of the school meeting AYP increased by .05%. The confidence level of this increase was very high at 96%. The data also indicated that while all variables in school achievement were not included in this research analysis, those variables that were included accounted for almost half of the variability. This data demonstrates that a principal's Experiential EI is a significant variable in school success.

Strategic EI Area Score

Controlling for FARM, Percent Minority, and Experiential EI, a one-point increase in Strategic EI is associated with a nonsignificant 1.009 multiplicative change in the odds of meeting AYP, $t(1) = .035$, $p = .852$ with a 95% confidence interval of (.922 , 1.103). This data indicates that there is not a significant degree of association between a principal's Strategic EI score and school success.

Model Fit and R^2 Test for Area Scores

Again, there was quite obviously multicolinarity among the variables. There was concern that this could affect the confidence level of the regression coefficients. This concern was again addressed by testing the significance by using the significance of the increase in the r^2 when the variable was added to the regression. The Hosmer and Lemeshow test results suggest that the model adequately fits the data, $\chi^2(8) = 10.063$, $p = .261$.

The Nagelkerke pseudo-R^2 statistic suggests that 48.7% of the variability in meeting AYP for these schools is associated with these four predictors. Comparing the fit for this model to one ignoring the two EI variables suggests significant improvement when including the Experiential Area EI variable, $\chi^2(4 - 2) = (22.638 - 4.821)$, $p < .001$. Figure 4 illustrates the increase in the predicted probability of meeting AYP as a function of Experiential EI (holding Strategic EI, FARMS and Percent Minority constant at their means). Figures 5, 6, and 7 illustrate similarly with respect to Strategic EI, FARMS and Percent Minority.

In this set of analysis it was determined that a significant degree of association between a principal's Experiential EI score and school success existed. There was no significant degree of association between a principal's Strategic EI score and school success.

Logistic regression for Branch Scores

The third analysis treated the two branches of Experiential EI (Perceiving Emotion and Facilitation Thought), the two branches of Strategic EI (Understand

Emotion and Managing Emotion), FARMS, and Percent Minority as continuous predictors. The resulting prediction equation was

$$+.966(Minority)+.961(FARMS) \qquad -.002(Minority)-.039(FARMS)$$

Converting the natural logarithms to their corresponding odds ratio estimates resulted in the following equation

$$\log(\Pr(AYP=1))=.012+1.045(Perceiving)+1.011(Facilitating+1.015(Understanding)+.998(Managing)$$

$$+.966(Minority)+.961(FARMS)$$

Perceiving EI Score

Controlling for Facilitating, Understanding, Managing FARMS and the Percent Minority, a one-point increase in Perceiving EI is associated with a significant 1.045 multiplicative change in the odds of meeting AYP, $t(1) = 3.079$, $p = .079$ with a 95% confidence interval of (.995 , 1.097). This data indicates that there is a significant degree of association between a middle school principal's Perceiving EI score and school success in meeting AYP.

For every 1 point increase in a principal's Perceiving EI score, the odds of the school meeting AYP increased by .04%. The confidence level of this increase was high at 93%. The data also indicated that while all variables in school achievement were not included in this research analysis, those variables that were included accounted for almost half of the variability. This data demonstrates that a principal's Experiential EI is a significant variable in school success.

Facilitating EI Score

Controlling for Perceiving, Understanding, Managing, FARMS, and Percent Minority, a one-point increase in Facilitating is associated with a nonsignificant 1.011 multiplicative change in the odds of meeting AYP, $t(1) = .111$, $p = .739$ with a 95% confidence interval of (.947 , 1.08).

Understanding EI Score

Controlling for Perceiving, Facilitating, Managing, Percent Minority, and FARMS, a one-point increase in Understanding is associated with a nonsignificant 1.015 multiplicative change in the odds of meeting AYP, $t(1) = .123$, $p = .726$ with a 95% confidence interval of (.933 , 1.104).

Managing EI Score

Controlling for Perceiving, Facilitating, Understanding, Percent Minority, and FARMS, a one-point increase in Managing is associated with a nonsignificant .998 multiplicative change in the odds of meeting AYP, $t(1) = .002$, $p = .998$ with a 95% confidence interval of (.904 , 1.101).

The data analysis to determine the degree of association between a principal's Facilitating, Understanding, and Managing EI scores to school success indicated that there was no significant association.

Model Fit and R^2 Test for Branch Scores

Matching the observed and predicted classification of meeting or not meeting AYP resulted in 76% classification accuracy. The Hosmer and Lemeshow test results suggest that the model adequately fits the data, $\chi^2(8) = 8.062$, $p = .427$.

The Nagelkerke pseudo-R^2 statistic suggests that 50.0% of the variability in meeting AYP for these schools is associated with these 6 predictors. Comparing the fit for this model to one ignoring the Perceiving EI Branch Score suggests significant improvement when including this branch, $\chi^2(4 - 2) = (23.315 – 5.498)$, $p < .001$. The results for the analysis are displayed in Table 2.

In this set of analysis the Facilitating Emotion Branch of Experiential EI as well as the Understanding and Managing EI Branches of Strategic EI demonstrated nonsignificance in predicting AYP because none exceeded the logistic alpha level ($p<.05$). The Facilitating EI Branch was not classified as significant with an alpha level of .852. Neither were the Understanding ($p=.726$) or the Managing Branches (.998) due to the fact that they were $p> .05$ as well. The Nagelkerke pseudo- R^2 test demonstrated that there was significant improvement in the overall model when the Perceiving EI Branch Score was included.

CHAPTER 5. DISCUSSION, IMPLEMENTATIONS, AND RECOMMENDATIONS

Summary and Discussion of Results

Restatement of the Problem

The problem addressed by this study was whether or not a middle school Principal's EI level has a significant association with success in meeting AYP in the State of Maryland. A review of the literature provided evidence that leaders in various fields have found success when they were able to take advantage of an ability to process emotional information in such a way as to positively affect their work environment. Furthermore, an exploration of the literature demonstrated that in many cases, a skill-set based within understandings of EI may greatly impact the overall learning within an environment.

This study sought to examine the influence of a leader's emotional impact not simply on employee perception, but on overall organizational performance. It was necessary to examine degrees of association between a middle school leader's ability to regulate emotional understandings, and how these understandings interplayed on various organizational levels to impact middle school and student success as measured by meeting or not meeting AYP.

Review of Literature

The review of the literature began with an analysis of the theoretical basis of Emotional Intelligence. Because EI is a relatively new method of studying human

intelligence there is controversy as to its theoretical foundation as well as its use to describe human potential beyond already established methods of intelligence reporting such as IQ and personality traits. However, there is a strong voice within the literature which has defended the use of EI as a method of measuring human potential.

The literature review for this study focused on three of the primary areas in which EI has been utilized in previous studies. These consisted of EI's impact on the health and mental well being of organizational members, the effect of EI on organizational leadership, and EI's connection to overall organizational performance.

Each of these three areas of research was consistent with the direction of this study's theoretical framework and design. The literature review also included descriptions of current research in both educational reform as well as educational leadership development programs. The literature supported the hypothesis that there could be correlation between a public middle school principal's EI level and his school's ability to meet AYP.

Review of Methodology

The purpose of this study was to gather information on Maryland public middle school principals' emotional intelligence levels and to check those EI levels for association to the principals' levels of success in meeting Adequate Yearly Progress (AYP). Individual Areas and Branches of Total EI were also analyzed for specific relationships to principal success rates. This study was based upon a correlational design.

Participants in this study were all Principals in the State of Maryland. 24 public school districts in the State of Maryland were contacted for permission to approach their middle school principals with requests to participate in this study. Out of the 24 school districts contacted, 12 school districts gave authorization for such contact. Principals were asked to complete the MSCEIT on-line which allowed for participation in a setting and at a time of their own choosing.

Outcome measures of principal success rates were determined through the collection of AYP data publically available through the Maryland State Department of Education, 2006-2007 on-line Report Card. EI data was based within the Mayer-Salovey 4-Branch Ability Model. The measurements of EI levels were determined through the application of an online assessment called the MSCEIT. The MSCEIT, a 141 item test which gathers "ability based" EI levels, allowed for EI data to be gathered at the Total, Area, and Branch levels.

The following hypotheses were made for this study based on previous research:

1. Principals with higher levels of EI will have more successful schools.
2. Principals with higher levels of EI will be more supportive to staff which will translate to higher MSA test scores.
3. Principals with higher levels of EI will better serve students from a wide variety of socioeconomic and ethnic backgrounds.

The following research questions guided this study:

1. What is the degree of association between a principal's Total EI and middle school success in meeting AYP?
2. What is the degree of association between specific Areas or Branches of a principal's EI and middle school success in meeting AYP?

The general analytic approach for addressing these questions was through logistic regression.. Logistic regression was utilized when determining relationship between EI and AYP, as AYP is a "Pass" or "Fail" binary score.

Findings

The purpose of this study was to determine the degree of association between a middle school principal's EI and school success. At the conclusion of this research study it was determined that there was in fact an expected and significant degree of association between segments of a principal's EI and his school's success in meeting AYP. The implications of these findings may hold tremendous implications for public educational policy.

For example, the mean score for Total EI in the sample population in this study was 98 (table 1). The authors of the MSCEIT indicated that a Total EI score of 100 is "competent" (Mayer et. al, 2002). This indicates that the participants in this study performed very closely to the "general" population's level of competency. The Total EI score provides on overall picture of the participant's Emotional Intelligence.

The data analysis determined that on average, the odds of meeting AYP increased by .06% for every 1 point increased in a principal's Total EI score. This indicates that an

increase of 10 points in a principal's Total EI score will, on average, yield a 5.8% increase in the odds that his school will be successful in meeting AYP. A principal who demonstrates "high" performance in Total EI with a score of 140 could expect to experience an 8.4% increase in the chances that AYP would be met. Again, it should be restated that these EI scores exist independently from cognitive intelligences and that it is the principal's ability to utilize emotional input to positively affect his environment which was being measured.

Similar findings of significant association were discovered in the Experiential EI in the Area scores and in the Perceiving EI in the Branch scores (figure 11). Experiential EI scores offer a measurement of the participant's ability to perceive the emotional inputs within the environment, to relate these perceptions to other senses such as color and taste, and then to use this information to act as a framework for additional comprehension. The Perceiving EI score offers a measurement of a participant's ability to identify emotions in himself as well as in others.

Increases in either of these segments of a principal's EI demonstrated significant associations with increased probability that a principal's school would experience success in meeting AYP (fig. 11). As the principals' EI levels increased in these specific segments of EI, so too did the average level of school success. The next step is to determine how these findings might be utilized to create positive impacts on the field of public educational policy and practice in an effort to increase school success.

Conclusions

This study utilized the 4 Branch Model of Emotional Intelligence. After the data was analyzed, significant associations between a principal's Total, Experiential, and Perceiving Emotional Intelligences and school success were discovered. Principals with higher EI levels in these areas were more likely to have schools which would experience success in meeting AYP. The logical conclusion is that it makes sense for school systems to seek out and utilize principals with higher levels of EI for positions of leadership in public middle schools in an effort to promote increased school performance.

As discussed in the literature review, post secondary leadership development programs have increasingly been including emotional intelligence training to their curriculum. This may be in response to the fact that the marketplace has begun to realize the value of leaders who are adept at navigating emotional environment and are aware of the impact that such leaders may have on organizational success. Educational leadership programs should also consider the implications of research in the field of EI and consider the value of adding EI training to their current curriculum. School systems may then choose to include EI selection criteria into their recruitment and promotion policies when looking for prospective middle school principals.

Unlike IQ, current research indicates that EI levels can be increased through the application of EI training programs (Meyer, et. al, 2004; Goleman, 2002). EI training programs should be adopted by school systems for use with their middle school principals. This should take place with a focus on the development of programs that are

designed to (1) educate people about the relevance of emotional intelligence in the workplace, (2) assess their relative strengths and weaknesses, and (3) provide a framework to develop and enhance their ability to interact with others with greater emotional intelligence (Boyatzis, 1999). Although current research determining the degree of association between EI and school success is limited at this time, recent studies have demonstrated that by addressing specific segments of EI, positive outcomes in the field of public education may occur (Justice and Espinoza, 2007). The segments of EI indicated in this study as having a significant degree of association to school success were the Experiential and Perceiving EI abilities of the participants. These should be specifically emphasized within such training programs.

Recommendations

This study utilized a single MSCEIT test to assess middle school principal EI levels. These scores were analyzed for relationship to a single year's AYP results. To further validate the findings of this study, research utilizing a test/ re-test methodology should be employed. Initial EI abilities should be recorded to establish baseline understandings of a principal's EI abilities. An appropriate leadership and training program could then be applied which educates participants in the importance of EI in the workplace, offers an assessment of participant EI ability, and provides a framework for the further development of EI ability. At the end of this training cycle another measure of EI ability should take place in an effort to determine the degree of change that occurs through participation in such an intervention.

A future study might gather a baseline EI level on all participants to be followed by an intervention program which offers EI training and development opportunities over a 1-year period. At the end of the year participants would be asked to participate in another MSCEIT assessment to check for degrees of change from the baseline test. Increases in AYP over a 1 year period might then be applied to a 2-year comparison of a principal's school status as having met or not-met AYP.

Recommendations for further study also include the continued analysis of those Areas and Branches of EI which did not demonstrate significant degrees of association between a principal's EI and school success . The Experiential Area of EI of a principal was identified as having a significant degree of association between a principal's EI and school success. The Perceiving Branch is one of two Branches which, when combined, comprise the Experiential Area of EI.

The Facilitating Branch of the Experiential Area of EI is the other Branch, and should not be disregarded due to its inability to demonstrate independent significance to an ability to predict AYP. There may be unknown benefits of the Facilitating Branch which when combined with the Perceiving Branch might increase the significance of the degree of association between EI and school success.. Along these same lines, the significance of the Total EI Score and its degree of association to school success may indicate a need to further analyze the individual components of the Strategic Area Score and its Branches. The data produced through such an intervention as described above might render valuable data which could more accurately define each Area and Branch score's degree of association to the individual principals' levels of success.

Recommendations for further research, including ideas for additional research that have arisen from but that were not incorporated in the study or supported by the data include the use of additional demographic information within such a research study. A principal's educational background may greatly impact school success. Another aspect which might be included in future studies should be the amount of time the principal has been working at his school. Finally, a measurement of the affectivity of the principal's support staff may provide valuable input into success rates in the school.

Additionally, there is a need to gather EI levels from other members of the middle school staff and student body. This study controlled for FARMS and minority levels when regressions were performed to determine the degree of association between a principal's EI and school success. However, other variables within the student population should be controlled for in future research in an effort to further distill the relationship that EI has to school success. For instance, the value of parental involvement in public school settings was demonstrated to be of significant value in the research literature. Future researchers may wish to include this levels of parental involvement in a measure of EI's relationship to school success.

Another aspect relating to school success not addressed within this research study was the effect that the teaching staff had on school success. Inclusion of staff member EI levels in future studies may offer additional insights into EI's relationship to school success. Additionally, qualitative / mixed method research designs might be employed to examine the interactions of a school staff and the effect that specific EI abilities have on intrapersonal relationships. This information might then be applied to issues of school success.

Although the literature demonstrated that the leader is directly responsible for a significant segment of an organization's success (Zeidner, et. al, 2004; Boyatzis, et. al, 2006), the overall EI abilities of the entire organization, and the relationship of those EI levels to school success, may offer tremendous insights into the development of programs to support school systems as they create school policy.

This research model might also be applied to elementary and secondary educational environments in an effort to determine if EI levels affect school success across the K-12 educational spectrum. Additionally, researchers may wish to look beyond the specific school site, and focus on District and State levels to determine if EI in leadership at these levels affects educational success rates.

It is evident through the analysis of the data produced by this study, that there is a significant relationship between a middle school Principal's EI level and his school's ability to meet AYP. Further exploration into this relationship may produce valuable information about the role of EI in public education and, through its development in the organizational members, how emotional intelligence abilities may be developed in an effort to promote increased and sustainable school success.

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APPENDIX A

Table A1. Descriptive Statistics

		Mean	*SD*	*N*
EI				
	Total	98.014	11.052	50
	Experiential	96.542	14.684	50
	Strategic	99.602	8.150	50
	Perceiving	31.700	132.30	50
	Facilitating	50.200	116.60	50
	Understanding	74.200	113.10	50
	Managing	76.800	113.90	50
Met AYP		0.460	0.503	50
AMO		74.142	11.494	50
Reading				
Minority		39.694	33.096	50
FARMS		28.922	19.507	50
Attendance		94.868	1.104	50

Table A2.

		b	SE_b	*t*	*df*	*p*	exp(*b*)	LL	UL
Logit (AYP=1)									
	Constant	-4.401	3.238	1.848	1	0.174	0.012		
	Total EI	0.066	0.035	3.614	1	0.057	1.068	0.998	1.143
	Minority	-0.034	0.017	4.012	1	0.045	0.967	0.935	0.999
	FARMS	-0.036	0.028	1.734	1	0.188	0.964	0.913	1.018
	Constant	-3.849	4.993	.594	1	.441	.441		
	Experiential	.054	.026	4.111	1	.043	1.055	1.002	1.111
	Strategic	.009	.046	.035	1	.852	1.009	.922	1.103
	Minority	-.038	.018	4.385	1	.036	.963	.930	.998
	FARMS	-.036	.028	1.715	1	.190	.964	.913	1.018
	Constant	-.035	.018	3.566	1	.059	.012		
	Perceiving	.044	.025	3.079	1	.079	1.045	.995	1.097

Facilitating	.011	.033	.111	1	.739	1.011	.947	1.080
Understand	.015	.043	.123	1	.726	1.015	.933	1.104
Managing	-.002	.050	.002	1	.963	.998	.904	1.101
Minority	-.035	.018	3.566	1	.059	.966	.931	1.001
FARMS	-.039	.031	1.657	1	.198	.961	.905	1.021

Table A.2 Continued

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Attend Rate	50	91	96	94.87	1.104
Prof Pct	50	33.4	89.9	67.520	14.6452
Minority	50	.9	99.7	36.022	33.8735
Total EI	50	73	119	98.10	11.116
FARMS	50	.6	67.0	28.814	19.6509
Valid N (listwise)	50				

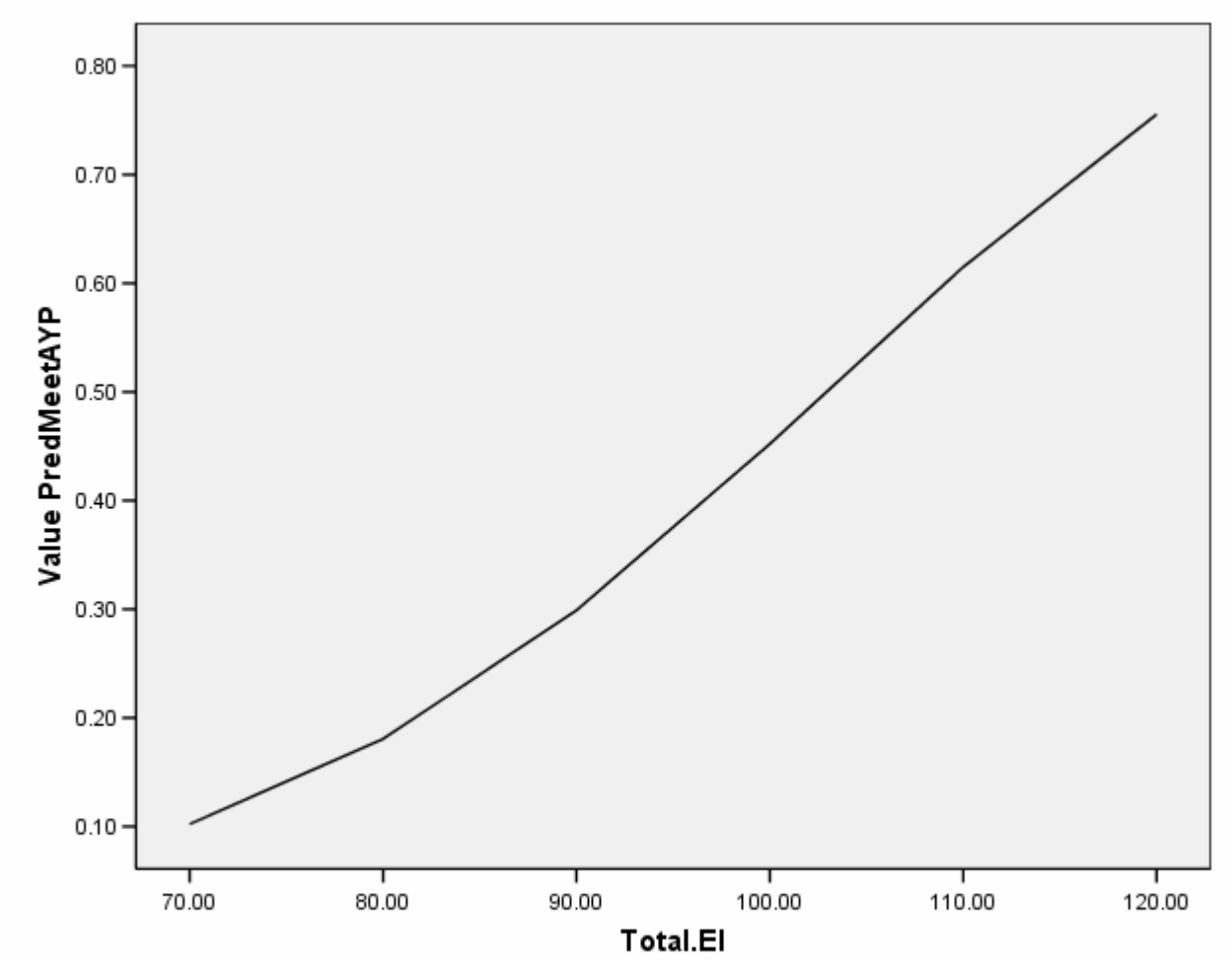

Figure A1. Total EI compared to AYP

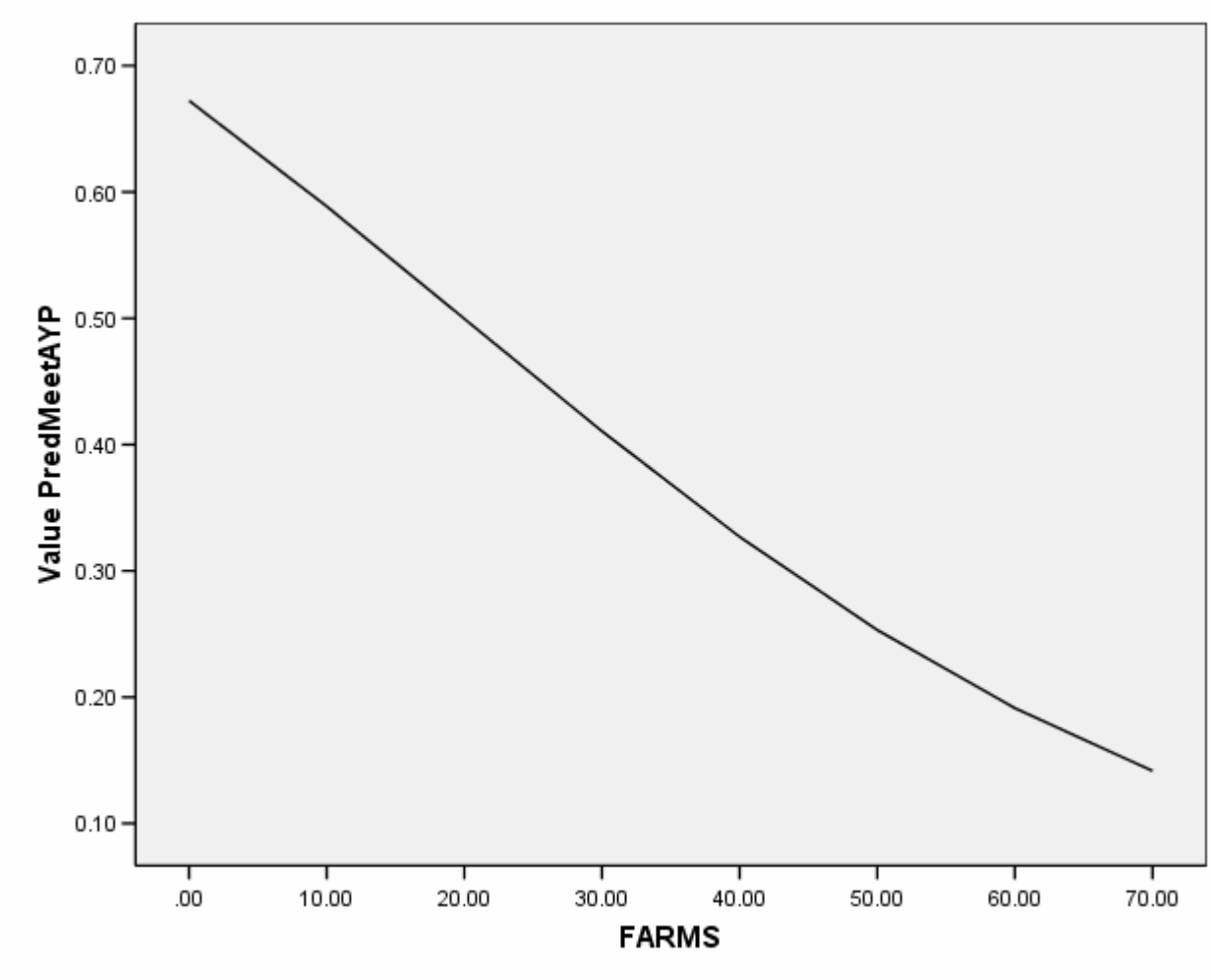

Figure A2. Relationship between AYP and Socioeconomics

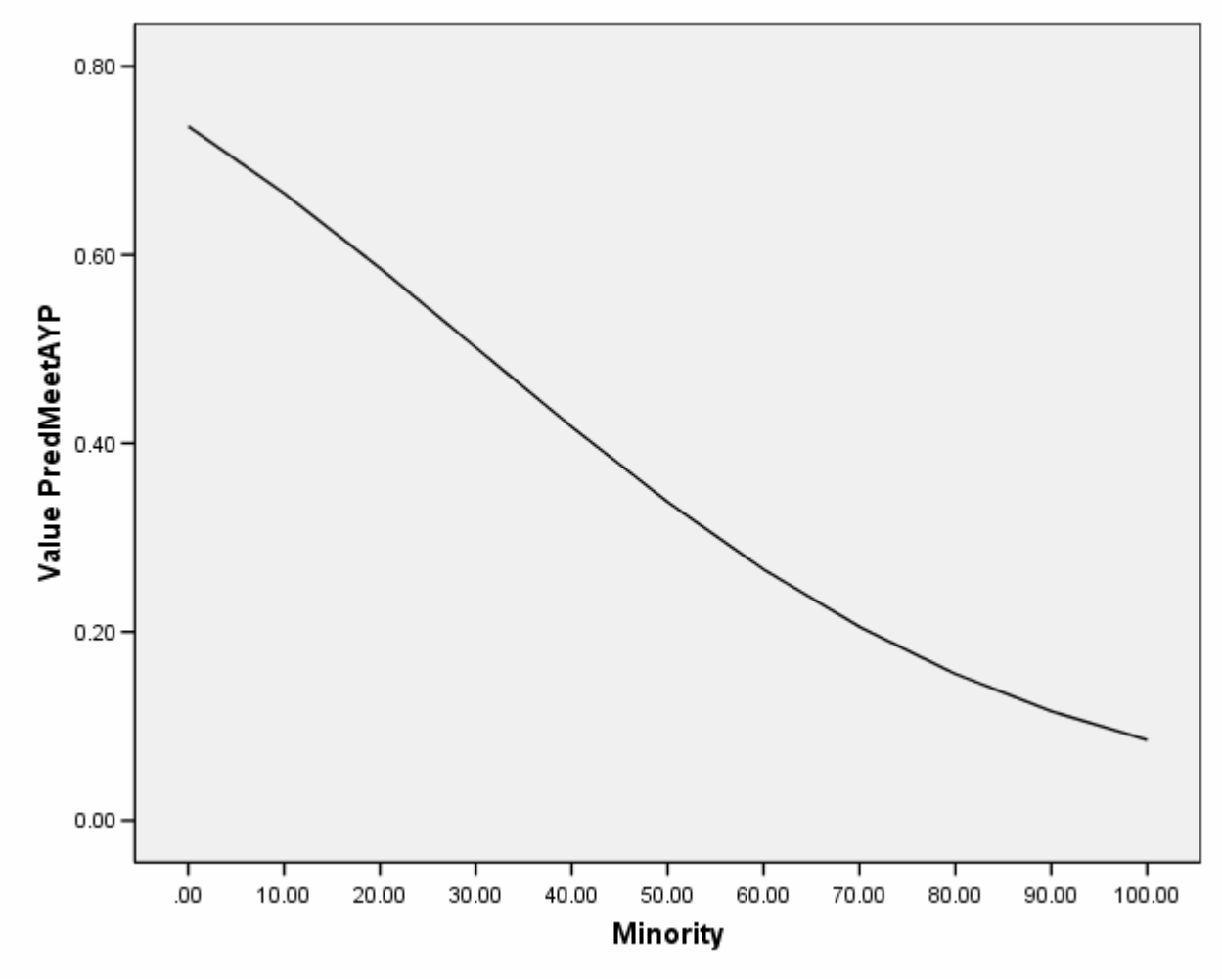

Figure A3. Relationship between AYP and Percent Minority

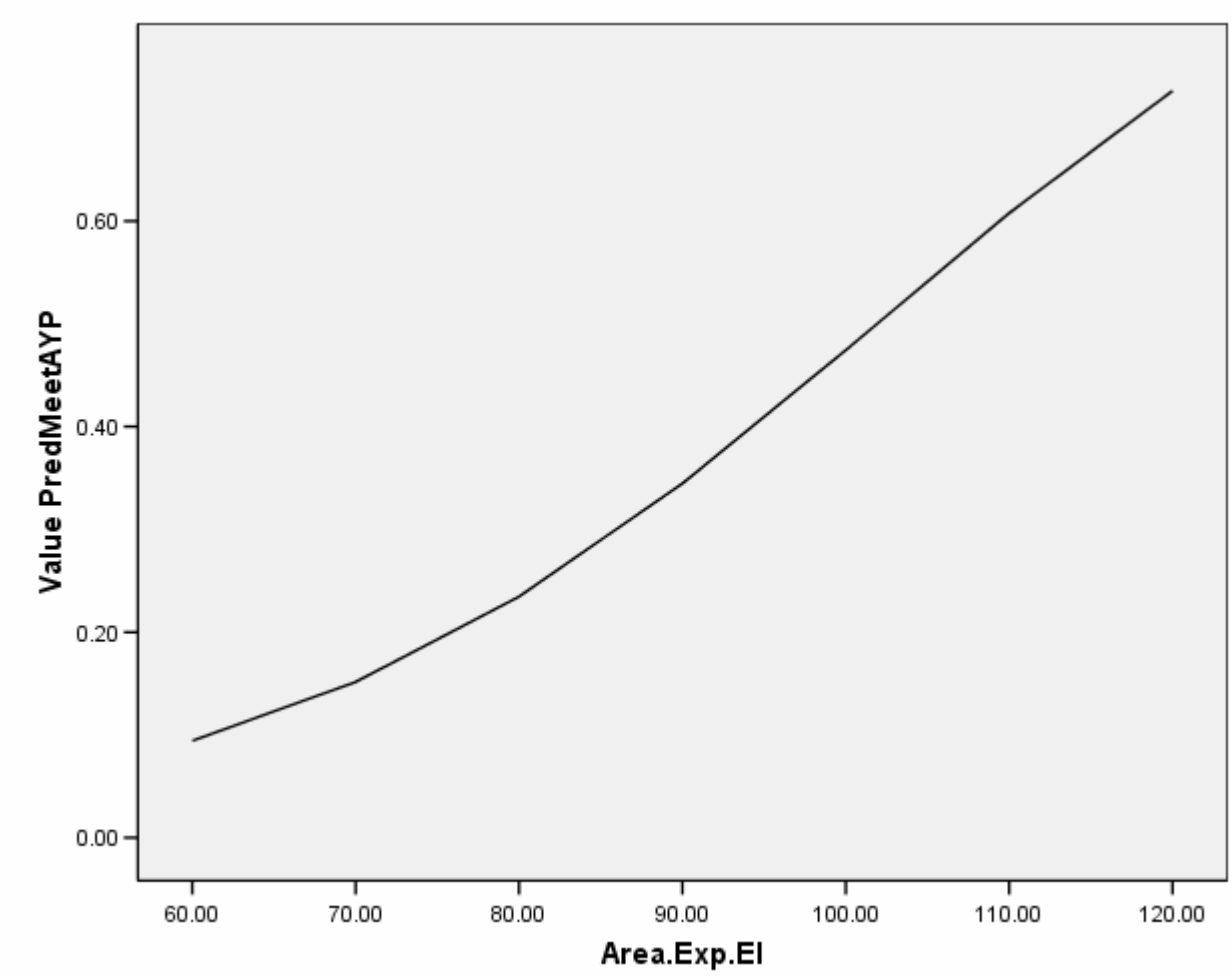

Figure A4. Relationship between AYP and Experiential EI (Area Level)

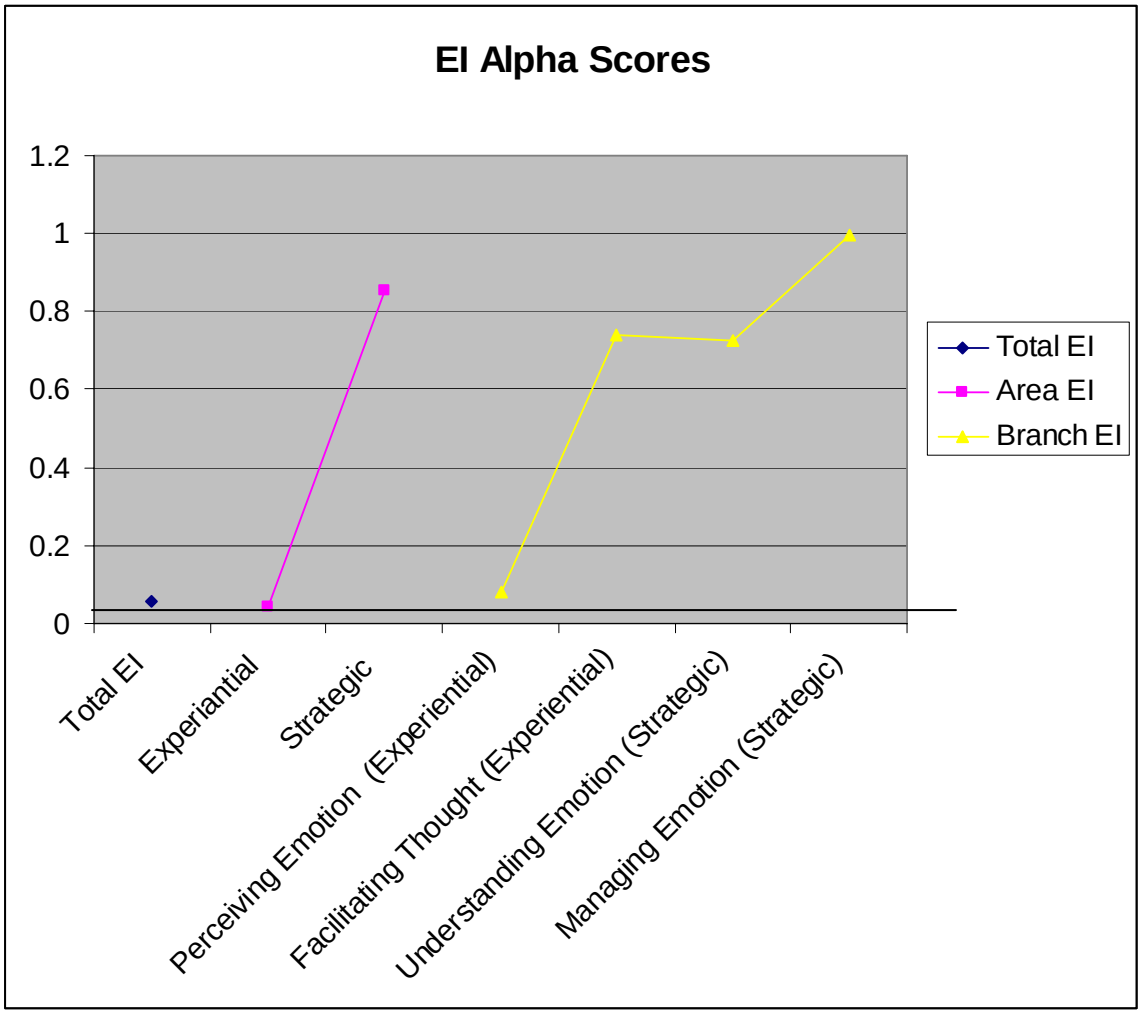

Figure A5. Alpha level scores

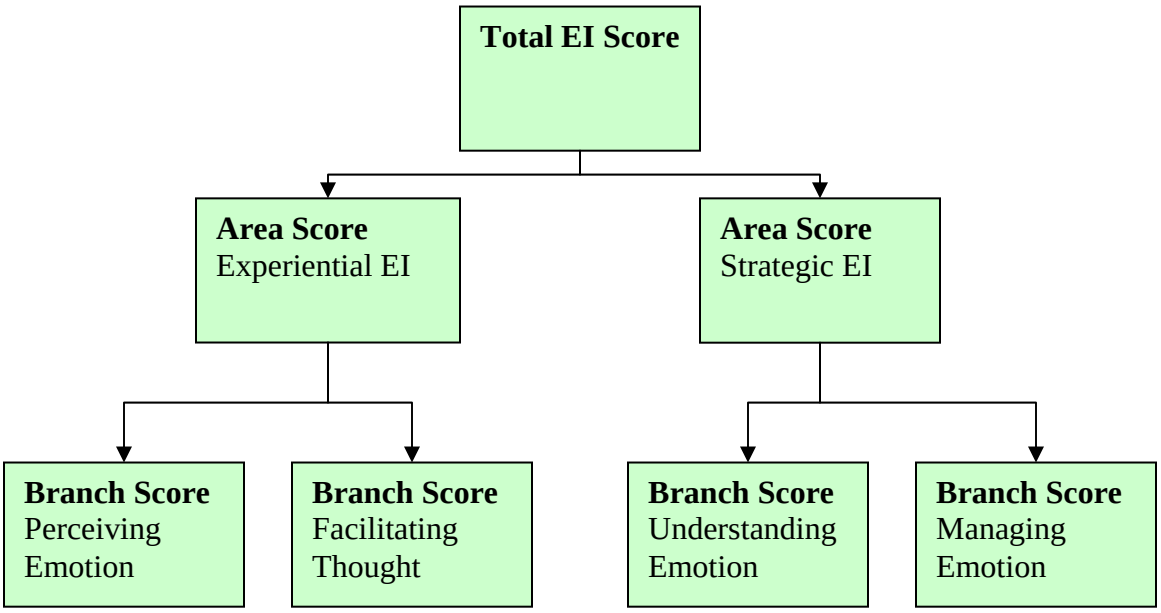

Figure A6. Four Branch Ability Model of Emotional Intelligence

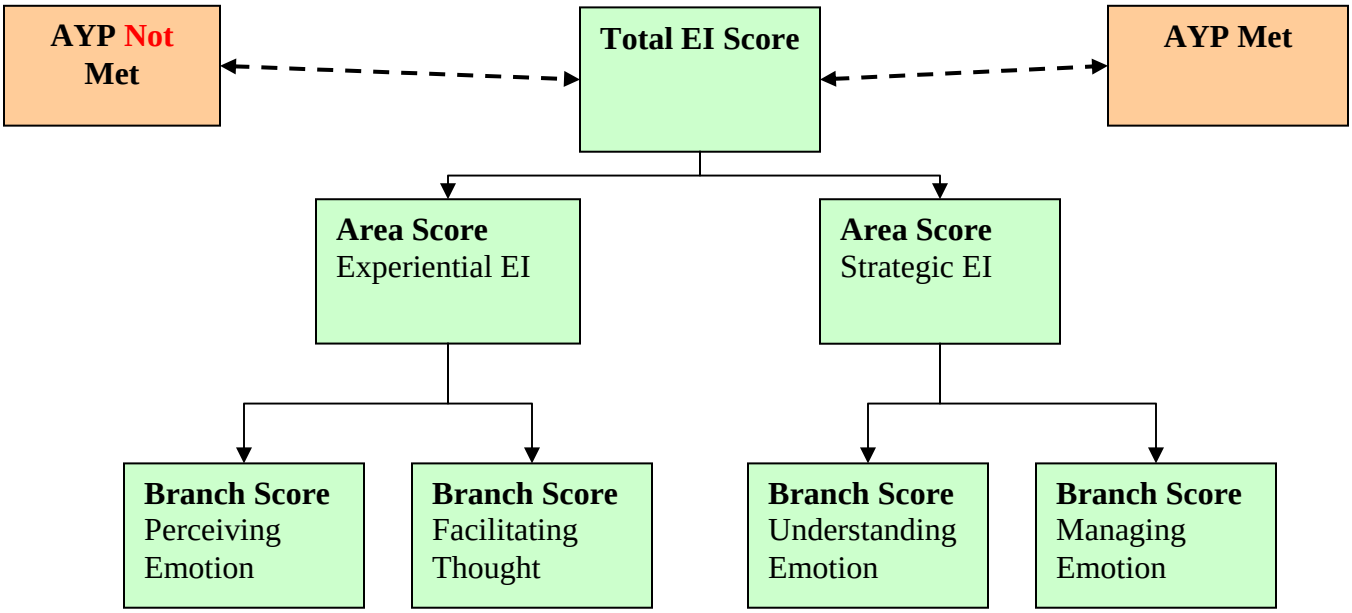

Figure A7. Four Branch Model of Emotional Intelligence Utilized in the Determination of the Degree of Association Between Principal EI and School Success.

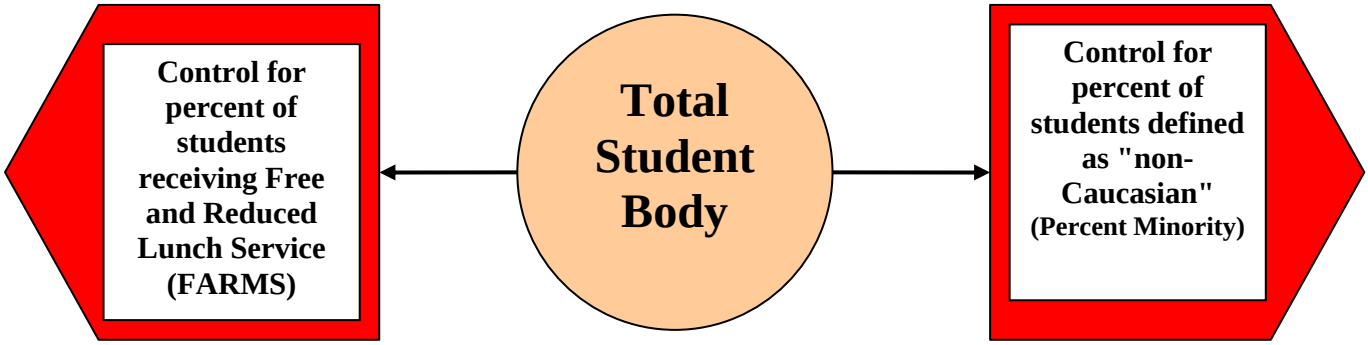

Figure A8. Controls

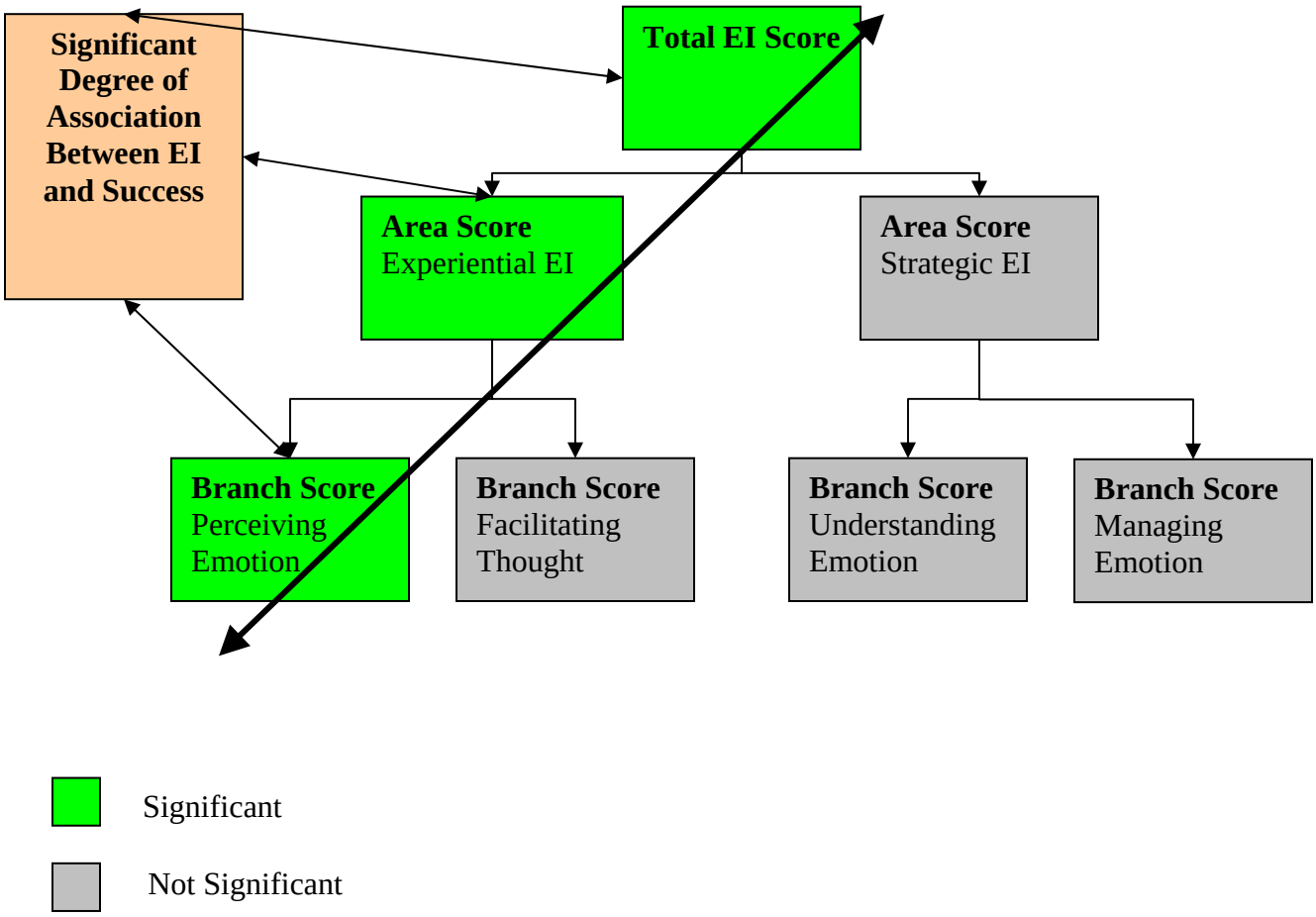

Figure A9. Representation of the significant degree of association between a principal's EI and school success. Relationships follow the hierarchical 4 Branch Model Design utilized in the study.