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An Analysis of the Emotional Quotient Inventory: Youth Version as a Measure of Emotional Intelligence in Children and Adolescents

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THE FLORIDA STATE UNIVERSITY

COLLEGE OF EDUCATION

AN ANALYSIS OF THE EMOTIONAL QUOTIENT INVENTORY:
YOUTH VERSION AS A MEASURE OF EMOTIONAL INTELLIGENCE
IN CHILDREN AND ADOLESCENTS

By

Celeste Nobles Shuler

A Dissertation submitted to the
Department of Educational Psychology and Learning Systems
in partial fulfillment of the
requirements for the degree of
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ABSTRACT

The purpose of this study was to contribute to the understanding of emotional intelligence as it occurs in children and adolescents by investigating the psychometric properties (i.e. validity) of the Emotional Quotient Inventory: Youth Version (EQ-i: YV). The validation of this instrument involved considering its relationship to cognitive intelligence, self-report of personality, and parent-report of behavior. A battery of tests that included a measure of intellectual functioning, an omnibus personality test, a measure of childhood behavior problems, and the EQ-i: YV was administered to a sample of 143 children ranging in age from 8 to 18 years. A small positive relationship was found to exist between Full Scale IQ and the broadband measure of emotional intelligence. Many significant correlations were obtained between the subtests of the EQ-i: YV and the omnibus personality test, suggesting a high degree of relationship. Significant correlations were evidenced among the scales of the EQ-i: YV and the measure childhood behavior problems (i.e. parent-report of behavior), but to a much lesser extent than with personality. The EQ-i: YV demonstrated the ability to predict significant emotional disturbance as measured by a clinically elevated score on a broadband measure of emotional difficulties. Lastly, aspects of personality were found to contribute more heavily to the prediction of overall emotional intelligence than did cognitive intellectual functioning.

CHAPTER I

INTRODUCTION

Emotional intelligence is a construct that has to do with the evaluation and expression of emotions experienced by oneself and others, as well as the ability to understand and regulate such emotions. Mayer and Salovey (1993) have formally defined it as “a type of social intelligence that involves the ability to monitor one’s own and others’ emotions, to discriminate among them, and to use that information to guide one’s thinking and actions”. More recently, Mayer, Salovey, & Caruso (2000a) have defined emotional intelligence as the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in self and others. By further understanding its properties, emotional intelligence can be utilized to enhance the necessary skills children need to advance socially in all areas of life, making it an important construct to research. Furthermore, developing valid instruments to adequately measure the construct may aid in the development of social intervention techniques for use with those children identified as lacking in emotional intelligence.

Although there has been debate over the actual existence of emotional intelligence as well as whether or not it is indeed an “intelligence” (Davies, Stankov, & Roberts, 1998; Mayer & Salovey, 1993), a growing interest in the construct has taken place both in the psychological research community and the public at large. Due to a growing dissatisfaction with unitary views of intelligence, scholars such as Gardner (1983) and Sternberg (1985; 1988) have advanced pluralistic theories incorporating more factors than the traditional cognitive approaches (e.g. Carroll, 1993; Cattell, 1971/1987; Horn, 1965). Based on several key components taken from these emerging theories, Salovey and Mayer (1990) conceptualized the first theory of emotional intelligence. The lineage of emotional intelligence can be traced from theorists such as Thorndike, who was responsible for conceptualizing the idea of social intelligence. Out of the

research on social intelligence emerged the concept of personal intelligence (Gardner, 1983), which consists of two constructs: interpersonal and intrapersonal intelligence. Interpersonal intelligence is purported to focus on external events and involves the recognition and evaluation of feelings in others. Intrapersonal intelligence, on the other hand, focuses on the self and one's ability to recognize and evaluate their own feelings. Both intrapersonal and interpersonal intelligence are theorized to be a large portion of what Mayer et al (2000a) define as emotional intelligence.

Many theorists have operationalized their theories of emotional intelligence with evaluative measures for use with adult populations. These measures include the Multifactor Emotional Intelligence Scale (MEIS; Mayer et al, 2000a), a performance based measure, and self-report measures such as the Bar-On Emotional Quotient Inventory (EQ-i; Bar-On, 1996), the Perception of Affect Scale (Bernet, 1996), the EQ MAP test (Cooper & Sawaf, 1997), and the Emotional Intelligence Scale (Schutte et al., 1998). Preliminary studies concerning the psychometric properties of self-report measures used with adult populations have been problematic at worst and inconclusive at best (e.g. Davies, Stankov, and Roberts, 1998). Only the Bar-On Emotional Quotient Inventory (EQ-i) has evidenced adequate reliability and some degree of validity (Dawada & Hart, 2000).

The above measures of emotional intelligence were developed exclusively for use with adult populations. Recent measures have been developed for children. In 1999, Sullivan developed The Emotional Intelligence Scale for Children (EISC). Unfortunately, the measure was not commercially published and is currently being revised due to difficulties establishing adequate levels of reliability and validity. Even more recently, Bar-On has developed the Emotional Quotient-Inventory: Youth Version (Bar-On, 2000), which is modeled after his adult version. However, this instrument has yet to be adequately validated on populations other than the normative sample. Given the lack of psychometrically sound instruments available for use with child populations, there is a need for more accurate and stable measures. Such instruments are necessary because research concerning the importance of emotional intelligence to school environments cannot be sufficiently addressed until adequate measures are constructed and/or current measures are satisfactorily validated.

Social Significance of the Study

The study of emotional intelligence is important to consider due to the many proposed benefits of emotional intelligence. Skills such as self-confidence, flexibility, persistence, empathy, and the ability to get along with others are aspects of emotional intelligence that have been related to increased job performance (Cherniss, 2000) and possibly to improved prosocial behavior in children. Furthermore, enhanced emotional intelligence may lead to increased self-management skills resulting in outcomes such as goal-directed behavior and problem-solving capability. Finally, enhanced emotional intelligence may bring about increased leadership capabilities as well as stress-management and/or coping skills.

Coping refers to a person's efforts to manage or control a situation viewed as stressful, overtaxing, or challenging to one's personal coping resources (Lazarus & Folkman, 1984; Matthews & Zeidner, 2000). Salovey, Bedell, Detweiler, and Mayer (1999, p.161) assert that emotionally intelligent persons demonstrate a more successful coping style because they "accurately perceive and appraise their emotional states, know how and when to express their feelings, and can effectively regulate their mood states." As such, Matthews and Zeidner (2000, p. 460) purport that adaptive coping might be "conceptualized as emotional intelligence in action, supporting mastery of emotions, emotional growth, and both cognitive and emotional differentiation, allowing us to evolve in an ever-changing world." Such adaptation to the environment is critical in obtaining successful life outcomes, in addition to self-preservation and survival.

If the construct of emotional intelligence does in fact encompass highly adaptable traits such as coping, stress management, and self-management skills, it should prove to be a potentially useful asset in various settings. For example, emotional intelligence has been theorized to have a positive effect on various organizational outcomes such as work-group cohesion, congruence between self- and supervisor appraisals of performance, employee performance, organizational commitment, and organizational citizenship (Abraham, 1999). Although relatively little research has been conducted concerning the importance of emotional intelligence to school age children, one could easily surmise the transference of skills from work related settings to a school environment. Social skills such as peer- group cohesion, congruence between self- and teacher ratings of

performance, commitment to the school environment, and citizenship may aid the child in excelling in the school environment.

By enhancing emotional intelligence, several resulting effects could improve students' educational performance (Salovey & Mayer, 1990). First, with enhanced emotional intelligence, negative factors such as discouragement and low self-esteem may be decreased. A decrease in such negative factors may result from the emotionally intelligent individual's ability to approach life tasks more adaptively due to an ability to effectively problem solve (Salovey & Mayer, 1990). Second, the enhanced ability to harness one's emotions and moods has been theorized to assist in the performance of complex intellectual tasks, a skill vitally important to educational success. Finally, improved emotional intellectual skills may allow students to use their feelings to increase motivation, achievements, and flexibility (Salovey & Mayer, 1990). With increased problem-solving capabilities and enhanced peer relationships, overall school performance and other desirable social phenomena such as popularity may increase. Therefore, emotional intelligence and the many factors related to one's emotional intelligence are important aspects for educational researchers to consider.

Statement of the Problem

The emotional intelligence construct is a relatively new concept with little empirical research and few psychometrically sound measures. As with most new theories, refinement is an ongoing, continual process. The emotional intelligence construct has been no exception, as several theories are currently in use as descriptors of the construct. Such an abundance of theory has led to confusion concerning the nature of emotional intelligence. Furthermore, current measures of the construct have not been well validated, which leads to more "fuzziness" concerning the make up of emotional intelligence. Therefore, more research in the area is needed for the purpose of overall theory refinement as well as to further validate current measures of emotional intelligence.

With such an abundance of different theoretical approaches, the emotional intelligence construct has become a "catch all" for all sorts of socially desirable behaviors. According to Mayer, Salovey, and Caruso (2000a), popular claims about the power of emotional intelligence to predict real-world behaviors are overstated and unsupported by empirical evidence. Additionally, the emotional intelligence construct

can be overly inclusive; “it can seem that emotional intelligence can refer to just about every desirable characteristic other than general (cognitive) intelligence” (Matthews & Zeidner, 2000, p. 460). Consequently, more research concerning the actual make-up of emotional intelligence would be valuable, as it would provide the empirical evidence needed to validate the construct.

Due to the widespread claims related to the construct of emotional intelligence, it is important to study this phenomenon with psychometrically sound assessment instruments. Such instruments will allow us to differentiate between the characteristics that actually make up the emotional intelligence construct and those that do not. Theorists such as Goleman have little evidence to back up their assertions as to the components and/or benefits of enhanced emotional intelligence (Pfeiffer, 2000). Unfortunately, many members of society blindly accept Goleman’s claims, even without the appropriate underlying research. Therefore, obtaining appropriate instrumentation for the purpose of examining the exaggerated claims made by Goleman is of great importance.

Bar-On and Parker are two leading researchers in the field of emotional intelligence in children who have sought to develop a concise theory of the construct as well as develop valid and reliable measures to test their theory. Initially, the Bar-On Emotional Quotient Inventory (EQ-i) (Bar-On, 1997) was developed to measure emotional intelligence in adults, and more recently, the companion Youth Version was constructed to assess children and adolescents (Bar-On & Parker, 2000). Both instruments are self-report in format and are relatively easy to administer, giving test users a quick and simple method of measuring Bar-On’s conception of emotional intelligence.

Although these tests have been commercially published, few studies have been conducted to determine evidence of their psychometric properties. Given the relative newness of the Youth Version, no validation studies other than those performed by the test authors have been published. This is potentially problematic, as some self-report measures of emotional intelligence in adults have been shown to lack in sound psychometric properties when further examined by independent researchers (e. g. Davies, Stankov, & Roberts, 1998). Even though the EQ-i (adult version) has been independently

examined (e. g. Dawada & Hart, 2000; Newsome et al, 2000), no such evidence of validity currently exists for the Youth Version.

In attempting to validate the Emotional Quotient Inventory: Youth Version (Bar-On & Parker, 2000), it will be important to consider its relationship to other previously defined and well established constructs. First, the relationship of the EQ-i: YV and that of cognitive intelligence (i.e. intelligence as it is historically considered) should be explored to determine what overlap exists between the two constructs. Second, given the significant degree of relationship between adult self-report measures of emotional intelligence and measures of personality (Davies et al, 1998), it would be crucial to determine if such a relationship holds true for child/adolescent self-report measures as well. Third, although no one measure currently exists to use in assessing the convergent validity of the EQ-i: YV, parent-report measures of behavior should provide some degree of similarity with the Bar-On conceptualization of emotional intelligence in children and should be considered in the validation of this instrument.

To assess the EQ-i:YV's ability to predict social/emotional difficulties, one should study the relationship between emotional intelligence and significant emotional disturbance (i.e. Does this instrument adequately discriminate between children with little to no social-emotional difficulties and those who have extreme social-emotional difficulties?). Such an exploration of relationship is desirable since one would logically assume that children with little to no emotional problems would exhibit a higher degree of emotional intelligence than those children exhibiting extreme problems with emotionality. Finally, if aspects such as cognitive intelligence and personality are shown to relate to emotional intelligence, it would be important to explore the relative contributions of these factors to predicting emotional intelligence as a whole. That is, after controlling for these factors, is there any variance left accounted for by the emotional intelligence construct. This would allow researchers to determine whether the EQ-i:YV is measuring anything new that is yet to be explained by previously defined constructs such as IQ and personality.

Attempting to validate the EQ-i: YV (Bar-On & Parker, 2000) will advance the construct of emotional intelligence in several ways. First, by studying the EQ-i: YV, it will be possible to further refine the theory of emotional intelligence as it pertains to

children and adolescents. This will lead to less confusion over the definition of emotional intelligence in children. Second, such a study may aid in refinement of how we conceptualize intelligence, in general. Although the research community at large does not generally accept the concept of emotional intelligence, the investigation of this construct has shed new light on emotionality and the role it plays in cognitive processing capabilities. Lastly, the proposed study will provide further evidence regarding the psychometric properties of the EQ-i: YV. This is a critical aspect of test development because test users must be certain of the underlying construct being measured by any given test. Given the problematic nature of self-report measures of emotional intelligence in the past (i.e. those designed for adult populations), it is particularly important to ascertain the psychometric soundness of this instrument.

Theoretical Foundation

As with traditional models of intelligence (i.e. cognitive), many theoretical models of emotional intelligence abound. Three of the most widely accepted conceptualizations of the construct are considered in this paper. These models are identified by author and include the following: a) Mayer et al, (b) Goleman, and (c) Bar-On. Chapter 2 provides an in depth discussion of each. This study will focus on the Bar-On model.

Purpose of the Study

The purpose of this study is to contribute to the understanding of emotional intelligence as it occurs in children and adolescents by investigating the validity of the Bar-On Emotional Quotient Inventory: Youth Version (EQ-i: YV) (Bar-On & Parker, 2000). The validation of this instrument will involve considering its relationship to cognitive intelligence, self-report of personality, and parent-report of behavior. First, the study will seek to understand the degree of relationship between the EQ-i: YV and cognitive intelligence, as measured by the Full Scale IQ score from the Wechsler Intelligence Scale for Children—Third Edition (Wechsler, 1991). Second, the study will investigate the relationship between the EQ-i: YV and self-report of personality, as measured by the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992). Third, the study will seek to understand the relationship between the EQ-i: YV and parent report of behavior as measured by the Child Behavior Checklist

(Achenbach, 2001). Fourth, the ability of the EQ-i:YV to predict social-emotional difficulties as measured by significantly elevated scores on the Emotional Symptoms Index of the BASC-SRP (Reynolds & Kamphaus, 1992) will be explored. Finally, the amount of variance explained by emotional intelligence after factors such as cognitive intelligence and personality are controlled for will be determined.

Research Questions

Given the statement of the problem and the corresponding purpose of the study, the following research questions have been formulated:

1. What is the relationship between emotional intelligence in children and adolescents (as measured by the EQ-i: YV) and cognitive intelligence (as measured by Full Scale IQ score)?
2. What is the relationship between emotional intelligence in children and adolescents (as measured by the EQ-i: YV) and self-report of personality (as measured by the BASC-SRP)?
3. What is the relationship between emotional intelligence in children and adolescents (as measured by the EQ-i: YV) and parent report of behavior (as measured by the CBCL)?
4. Can emotional intelligence predict social/emotional difficulties as measured by an elevated score on the Emotional Symptoms Index of the BASC-SRP (Reynolds & Kamphaus, 1992)?
5. What is the relative contribution of measures of cognitive functioning and social-emotional functioning to the overall prediction of emotional intelligence?

Assumptions

This study will operate under the following assumptions:

1. Emotional intelligence is a complex phenomenon that occurs in both children and adults.
2. Subjects of the study will be children or adolescents who possess some degree of emotional intelligence as defined by the Bar-On Emotional Quotient Inventory: Youth Version.
3. Subjects will respond to questionnaires openly and honestly.

4. The Wechsler Intelligence Scale for Children—Third Edition (WISC-III; Wechsler, 1991) provides a valid and reliable measure of general intelligence.
5. The Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) is a valid and reliable “omnibus” measure of personality, assessing aspects such as Clinical Maladjustment (Anxiety, Atypicality, Locus of Control, Social Stress, and Somatization), School Maladjustment (Attitude to School, Attitude to Teachers, and Sensation Seeking), Personal Adjustment (Relations with Parents, Interpersonal Relations, Self-Esteem, Self-Reliance), Depression, Sense of Inadequacy, and Emotional Symptoms Index (composite score).
6. The Child Behavior Checklist (CBCL; Achenbach, 2001) is a valid and reliable measure of parent report of behavior in children, such as social problems, anxiety, somatic complaints, withdrawal, attention problems, delinquent behavior, and aggressive behavior.

Definition of Terms

In order to shape a common understanding among readers, some definitions are used to clarify the terminology used in this study:

Intelligence - Intelligence comprises the mental abilities necessary for adaptation to, as well as shaping and selection of, any environmental context (Sternberg, 1997). Intelligence also includes attributes such as basic mental processes and higher order thinking such as reasoning, problem solving, and decision making (Sternberg, 1986; 2000).

Personality – Traits involving the “expectations, interpretations, and personal constructs (or schemas), one brings to one’s understandings about the way the world works” (Zirkel, 2000, p.3; Kelly, 1955). Traits relevant to this study include the following constructs as measured by the Behavior Assessment System for Children (Reynolds & Kamphaus, 1992):

Anxiety – Feelings of nervousness, worry, and fear; the tendency to be overwhelmed by problems.

Attitude to School – Feelings of alienation, hostility, and dissatisfaction regarding school.

Attitude to Teachers – Feelings of resentment and dislike of teachers; beliefs that teachers are unfair, uncaring, or overly demanding.

Atypicality – The tendency toward gross mood swings, bizarre thoughts, subjective experiences, or obsessive-compulsive thoughts and behaviors often considered “odd”.

Depression – Feelings of unhappiness, sadness, and dejection; a belief that nothing goes right.

Interpersonal Relations – The perception of having good social relationships and friendships with peers.

Locus of Control – The beliefs that rewards and punishments are controlled by external events or other people.

Relations with Parents – A positive regard towards parents and a feeling of being esteemed by them.

Self-Esteem – Feelings of self-esteem, self-respect, and self-acceptance.

Self-Reliance – Confidence in one’s ability to solve problems; a belief in one’s personal dependability and decisiveness.

Sensation Seeking – The tendency to take risks, to like noise, and to seek excitement.

Sense of Inadequacy – Perceptions of being unsuccessful in school, unable to achieve one’s goals, and generally inadequate.

Social Stress – Feelings of stress and tension in personal relationships; a feeling of being excluded from social activities.

Somatization – The tendency to be overly sensitive to, experience, or complain about relatively minor physical problems and discomforts.

Social Skills – Highly specific patterns of learned observable behavior, both verbal and nonverbal, through which we influence others and attempt to meet our needs (Gersten et al, 1987; Topping et al, 2000).

Social Competence – The possession and use of the ability to integrate thinking, feeling, and behavior to achieve social tasks and outcomes valued in the host context and culture (Gersten et al, 1987; Topping et al, 2000).

Emotional Competence – The demonstration of self-efficacy in emotion-eliciting social transactions (Saarni, 2000).

Self-efficacy – The belief that one has the capacity and skills to achieve a desired outcome (Saarni, 2000).

Emotional Intelligence - the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in self and others (Mayer et al, 2000).

Limitations

The level to which the results of this study are generalizable to other populations will be limited due to the fact that the sample used in this study is a criterion sample. It was necessary to use children and adolescents being referred for psychoeducational testing in order to gather all of the proposed data. Additionally, a second sample of non-referred children will consist of volunteers from a rural, southeastern school district. Therefore the generalizability of the study will be limited to clinic-referred children and children attending rural, southeastern school districts.

An additional limitation includes the use of self-report measures for data collection. Generalizations about the nature of responses on non self-report measures (i.e. ability measures of emotional intelligence) and potential differences in responding are not possible.

CHAPTER II

REVIEW OF THE LITERATURE

Purpose

This chapter is a literature review of previous research pertinent to the construct of emotional intelligence. It is divided into four main areas: (1) Theories of Intelligence/Measurement Approaches; (2) Theories of Emotional Intelligence/Measurement Approaches; (3) Qualitative Analysis of the Bar-On Emotional Quotient Inventory: Youth Version (Bar-On & Parker, 2000); and (4) Applications of Emotional Intelligence to Clinical Practice.

Theories of Intelligence: A Historical Perspective

Recently, many theorists have become discouraged with traditional definitions of intelligence because they are too narrowly defined (Gardner, 1983/1993; Sternberg, 1988). Researchers such as Gardner (1993) prefer a more pluralistic view of intelligence that encompasses more human abilities and characteristics. However, many theorists in the psychological research community still adhere to traditional two factor models. Given this trend, some researchers advancing emotional intelligence theories are attempting to define the construct in ways that focus on ability (as opposed to traditional personality traits) in order to gain credibility in the research community (e.g. Mayer et al, 2000a). Since emotional intelligence is moving toward traditional ability models, it will be helpful to explore how intelligence has been historically defined.

The nature of human intelligence has often been a hotly debated issue in the field of psychology. Historically, there has been little consensus as to the nature of intelligence. For example, Sattler (1992) describes a symposium conducted in 1921 where 13 psychologists gave 13 different definitions of human intelligence when asked to

define the construct. Spearman (1927, pg.24) eloquently articulated the difficulty surrounding the search for the meaning of intelligence when he noted the following:

The most enthusiastic advocates of intelligence become doubtful of it themselves. From having naively assumed that its nature is straightway conveyed by its name, they now set out to discover what this nature really is. In the last act, the truth stands revealed that the name really has no definite meaning at all; it shows itself to be nothing more than a hypothesized word, applied indiscriminately to all sorts of things.

According to Wesman (1968), much of the confusion concerning the defining (and measuring) of intelligence is due to the fact that it is an attribute which reflects the summation of the learning experiences of the individual, as opposed to a separate entity in and of itself, as it is generally described.

Traditional models

Those espousing factor analytic theories of intelligence have played a major role in discovering the nature of human intelligence. According to Sattler (1992), these theorists have formed two camps: those who espouse a general factor theory (*g*) and those who favor a multiple-factor theory. However, Sattler (1992) reports that although many factor analytic theorists disagree about how intelligence is organized, they commonly accept the theory of general intelligence with the belief that intelligent behavior is multidimensional.

Spearman was an early proponent of the factor analytic approach to intelligence. He defined intelligence as a two-factor phenomenon, which consisted of a general factor (*g*) and one or more specific factors (*s*) (Spearman, 1927). Spearman (1927) determined that *g* consisted of general mental energy, and that the most complicated mental abilities required the most *g*.

Horn and Cattell (Cattell, 1963; Horn, 1967, 1968, 1985; Horn & Cattell, 1967) are also major proponents of the factor analytic approach to human intelligence. They describe intelligence as consisting of two major aspects, namely fluid and crystallized abilities. Fluid intelligence is nonverbal, relatively culture free mental efficiency, whereas crystallized intelligence consists of acquired skills and knowledge that are strongly dependent on exposure to culture (Sattler, 1992). According to Sattler (1992), fluid

intelligence involves adaptive and new learning capabilities and is related to mental operations and processes. Crystallized intelligence, on the other hand, involves over learned and well-established cognitive functions. Furthermore, crystallized intelligence is related to mental products and achievements.

Horn and Cattell's original theory of fluid and crystallized intelligence has evolved into a contemporary structural theory of intelligence known as the Gf-Gc theory (Horn & Noll, 1997). According to Horn and Noll (1997), modern Gf-Gc theory specifies a simple structure organization of broad abilities among primary abilities. Furthermore, Horn and Noll (1997) indicate that this theory is first, a description of thinking capabilities that characterize humans in contrast to other creatures, and secondly, an attempt to describe individual differences within the human species, in terms of abilities.

Recent perspectives

Although historically intelligence has been thought to involve a general factor and one or more specific factors, it has only been in recent history that theorists have considered a more pluralistic view of intelligence. Two such researchers are Sternberg (1986), who conceptualized an information processing approach to intelligence and Gardner (1983/1993), who conceived the theory of multiple intelligences.

Sternberg (1986) has developed a multidimensional theory of intelligence based on the cognitive information processing approach. In Sternberg's model, intelligence consists of three parts: componential, experiential, and contextual. The componential dimension addresses the internal, elementary information processes underlying intelligent thought (Gardner, Kornhaber, & Wake, 1996). Sternberg (1986) reports that a component is "a mental process that may translate a sensory input into a mental representation, transform one mental representation into another, or translate a mental representation into a motor output." There are three broad kinds of components: metacomponents, which plan, control, monitor, and evaluate processing during problem solving; performance components, which carry out the problem-solving strategies specified by the metacomponents; and knowledge acquisition components, which selectively encode, combine, and compare information during the course of problem solving, enabling new learning to occur (Gardner, Kornhaber, & Wake, 1996).

The experiential component of Sternberg's theory (1986) specifies to what degree intelligence is involved in an individual's experience with handling tasks or situations (Sattler, 1992). According to Sternberg (1997), assessing intelligence requires not only the consideration of the different components, but also the level of experience with which they are applied. In the contextual dimension, intelligent thought is directed toward one or more of three behavioral goals: adaptation to an environment, selection of an environment, and shaping of the environment (Sternberg, 1997). Sternberg (1997) postulates that these three goals may be viewed as the functions toward which intelligence is directed.

Due to the growing dissatisfaction with the concept of IQ and with unitary views of intelligence, Gardner proposed a pluralistic view of the mind, which recognized many different and discrete facets of cognition (Gardner, 1990). This view acknowledges that people have different cognitive strengths and contrasting cognitive styles (Gardner, 1990). Gardner's theory of multiple intelligences is quite contradictory to the two-factor theory initially proposed by Spearman (1927), which emphasized the role of *g* or a general intelligence. However, an earlier theory of intelligence set forth by Thorndike (1927) may be the precursor to multiple intelligence theories such as Gardner's. Thorndike posited that intelligence was the product of a large number of interconnected but distinct intellectual abilities. He identified three clusters based on common mental activities: social (dealing with people), concrete (dealing with things), and abstract intelligence (dealing with verbal and mathematical symbols). Thorndike (1920) defined social intelligence as "the ability to understand and manage men and women, boys and girls—to act wisely in human relations."

Concentrating on a more sociological perspective than Thorndike, Gardner (1983/1993) defines multiple intelligence as "the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community". Gardner is concerned with accounting for the wide range of intelligent performances that are valued in different societies but have not been historically considered in the development of test instruments. Gardner (Torff & Gardner, 1999) views the word "intelligence" as a term for "organizing and describing human capabilities in relation to the cultural contexts in which those capabilities are developed, used, and given meaning". According to Chen

and Gardner (1997), intelligence should be described not only in terms of abstract thinking skills and problem-solving abilities, but also in terms of the applications of such abilities.

In his theory of multiple intelligences, Gardner has identified seven different human intelligences: linguistic, musical, logical-mathematical, spatial, bodily kinesthetic, intrapersonal, and interpersonal (Gardner, 1993; Chen & Gardner, 1997; Gardner, Kornhaber, & Wake, 1996; Torff & Gardner, 1999). Traditionally, the linguistic and logical-mathematical intelligences have been emphasized in psychometric and school settings. However, Chen and Gardner (1997) propose that all seven intelligences should be given equal priority and viewed as equally valid and important. Furthermore, Chen and Gardner (1997) do not claim that his list of seven intelligences is exhaustive, but considers them the starting point for a pluralistic view of intelligence. In fact, they claim that there are probably numerous intelligences and possibly even more “subintelligences” (Chen & Gardner, 1997).

Multiple Intelligence (MI) theory challenges the traditional psychometric view of intelligence on several fronts. First, MI theory questions the definition of intelligence as a single, global entity that is stable and representative of the entire range of cognitive behaviors (Chen & Gardner, 1997; Herrnstein & Murray, 1994; Gould, 1981). Gardner’s work with atypical populations such as prodigies, savants, autistic children, and those with learning disabilities reveals that such populations tend to present with jagged cognitive performance profiles (for a full discussion see Gardner, 1993; Torff & Gardner, 1999). These types of profiles are inconsistent with a unitary view of intelligence. Furthermore, MI theory argues that a unitary view of intelligence, which rank orders individuals in terms of how smart they are, lends itself to the idea that some are “cognitive elites” and should be given special treatment.

MI theory also differs from the psychometric view of intelligence in that MI theory views intelligence in terms of a “vertical” conceptualization rather than the traditional “horizontal” view (Torff & Gardner, 1999). Horizontal theories of intelligence assume that the mental abilities measured by traditional intelligence tests function similarly in all content areas and operate according to one general law (Chen & Gardner, 1997). In MI theory, however, the mind is organized in terms of content areas as opposed

to a single horizontal capacity such as memory, perception, or processing speed that cuts across domains. As such, an individual could be a rapid or slow learner in one of the seven intelligences without there being predictable consequences for any of the other intelligences (Chen & Gardner, 1997).

Finally, MI theory opposes the assessment methods employed by traditional psychometric views of intelligence. MI theory advocates measuring intelligences by asking individuals to solve problems in the contexts where they naturally occur (Chen & Gardner, 1997), as opposed to one-shot experiences often delivered through paper and pencil methods. For example, interpersonal skills, an often excluded capacity in traditional intelligence tests, could be measured in the context of a social situation.

Analysis of Theories of Intelligence

As previously discussed, the nature of intelligence has been a historically debated issue. As of yet, no single, widely agreed upon definition of intelligence exists; rather, many definitions encompassing many characteristics and/or traits are the norm. The current problem surrounding the defining of intelligence as a construct was simply and parsimoniously addressed by Sternberg (2000, p.3): “Looked at in one way, everyone knows what intelligence is; looked at in another way, no one does”. In other words, most people have perceptions of intelligence, but no one really knows what it is. Such a lack of theoretical consensus hinders the study of intelligence as a construct.

Disagreement over many issues contributes to the lack of consensus as to the nature of intelligence. For example, many theorists disagree over whether intelligence is a single entity or is a multifaceted construct. Although many theorists agree that intelligence is multidimensional (Sattler, 1992), the degree to which it is multidimensional is still debated. Many theorists disagree as to the number of dimensions to be considered as intelligent thought and to what degree they contribute to the construct of intelligence in general. That is, while many theorists view intelligence narrowly in terms of biological or cognitive elements, others include a more broad assortment of characteristics such as motivation and personality (Sternberg, 2000). Such disagreement lends much confusion as to what intelligence really is and to what types of behavior can (or can not) be considered “intelligent”. Additionally, broad definitions of intelligence may lead to the blurring of lines between intelligence and other constructs such as personality.

Even though dimensionality is a point of contention among researchers in the field of intelligence, some overarching characteristics are achieving prominence among scientists. With technological advances and the introduction of computers, information processing approaches have gained popularity. Such terms as “cognitive processing abilities” and “metacognition” are gaining importance in relation to the way we conceptualize intelligent thought. Additionally, the role of context and culture, once overlooked, are now being considered by researchers. Emotionality is a concept currently being considered in relation to how we think about and conceptualize intelligence as well. With such new insights into how we view intelligent thought, the defining of intelligence and the factors it constitutes is becoming increasingly difficult. As with most new ideas that expand upon and challenge commonly held beliefs, some skepticism and resistance will be encountered as we aim to refine our view of intelligence. Therefore, continued research in the field of intelligence is needed in order to parcel out fact from fiction as we attempt to integrate new and emerging theories.

Commonly Agreed Upon Characteristics of Intelligence

Although many theories of intelligence abound, some consensus as to characteristics common to intelligent individuals are evident. In 1986, Sternberg analyzed definitions given by two dozen experts in the field of psychology. In regards to the nature of intelligence, attributes including adaptation to environment, basic mental processes, and higher order thinking such as reasoning, problem solving, and decision making were prominent. Additionally, metacognition (viewed as both knowledge about and control of cognition) was a prominent theme among leading experts. Specifically, emphasis was given to the role of knowledge and the interaction between knowledge and mental processes. Lastly, context, or the role of culture, was a prominent theme in defining the nature of intelligence.

Sternberg (Pfeiffer, 2001) proposes a definition of intelligence that may provide a useful theoretical framework for considering nontraditional perspectives of intelligence such as emotional intelligence. According to Sternberg (1997), intelligence comprises the mental abilities necessary for adaptation to, as well as shaping and selection of, any environmental context. According to this definition, individuals act intelligently not only

when they successfully adapt or react to the environment, but also when they shape and change their existing environment to meet their needs (Pfeiffer, 2001).

Measurement of Intelligence

Two widely used measures of intelligence for children and adolescents are the Stanford-Binet: Fourth Edition (Thorndike, Hagan, & Sattler, 1986) and the Wechsler Intelligence Scale for Children: Third Edition (Wechsler, 1991). These commonly used tests are the products of many years of test development, research, and debate. Of constant concern has been the issue surrounding the theoretical base of these instruments. Historically, intelligence tests have not been theoretically based and were developed out of practical necessity (Kaufman, 2000). Due to lack of theoretical background, current research has focused on attempting to fit existing tests, such as the Wechsler tests, to theory and/or revising tests such as the Stanford-Binet: Fourth Edition using a theory of intelligence (Kaufman, 2000). In essence, this attempt to fit test to theory continues, and leaves many scholars, researchers, and clinicians to ponder the nature of intelligence and exactly what such “intelligence tests” measure.

Brief History of Intelligence Testing

To gain a clear picture of the current status of intelligence testing, a historical view of the development of intelligence testing will be explored. According to Sattler (1992) and Shouksmith (1970), Sir Frances Galton of England is considered to be the father of the intelligence testing movement. Galton, whose work was based on the notion of eugenics, theorized that since people take in information through the senses, those with the highest intelligence should also have the best sensory discrimination abilities (Kaufman, 2000; Sattler, 1992). However, Galton’s theory was never proved to be a valid measure of the construct of intelligence (Kaufman, 2000; Cohen, Montague, Nathanson, & Swerdlik, 1988). Therefore, his testing of sensory discrimination abilities has largely fallen by the wayside in modern intelligence assessment.

A second leader in the development of intelligence testing was Alfred Binet. He, along with Victor Henri and Theodore Simon, developed the Binet-Simon scale in 1905, which many consider to be the first practical intelligence test (Sattler, 1992). This test was developed out of the need to distinguish mentally retarded children from “normal” children in French classrooms. Like many intelligence tests, the Binet-Simon scale was

approached in a practical rather than theoretical nature. Furthermore, much of the test was actually based on Binet's own observations of his daughter's development (Kaufman, 2000).

In 1916, Lewis Terman of Stanford University introduced the Binet-Simon to the United States. The test was re-named the Stanford-Binet Intelligence Scale (Terman, 1916) and is the precursor to the present day Stanford-Binet: Fourth Edition (Thorndike et. al., 1986). In 1917, with the entry of the United States into World War I, the practical necessity for group administered intelligence tests arose (Kaufman, 2000). Out of such necessity, the Army Alpha and Army Beta tests were developed, which were tests of verbal and non-verbal abilities, respectively (Sattler, 1992). According to Kaufman (2000), many valuable lessons were learned from the development of the Army Alpha and Beta tests. Such lessons include the following: the development of group-format intelligence testing, the joining of non-verbal with verbal tests to measure IQ, the realization that IQ tests were useful for adults and children, and the notion that IQ tests could provide valuable information about high functioning individuals instead of parceling out low functioning individuals.

Based on his experiences with intelligence testing during World War I, David Wechsler developed the Wechsler-Bellevue Intelligence Scale (Wechsler, 1939), which was unique because it combined both verbal and non-verbal tasks in the assessment of intelligence. Currently, three intelligence tests developed by David Wechsler are widely used. They include the Wechsler Preschool and Primary Scale of Intelligence—Revised (Wechsler, 1989), the Wechsler Intelligence Scale for Children—Third Edition (Wechsler, 1991), and the Wechsler Adult Intelligence Scale—Third Edition (Wechsler, 1997). According to Kaufman (2000), the Wechsler scales are the most widely used tests of intelligence in the world.

In the development of the Wechsler-Bellevue Intelligence Scale (Wechsler, 1939), Wechsler borrowed many items from the Stanford-Binet and Army Alpha to develop the Verbal Scale of the test as well as items from the Army Beta to develop the nonverbal, Performance Scale (Kaufman, 2000). Such borrowing of items is significant, in that it demonstrates that Wechsler's test was not theoretically based, but developed from a clinical and practical perspective. His development of the test was based on his "clinical"

belief that everyone should be evaluated on both verbal and nonverbal scales. Furthermore, he believed that profiles of scores should be provided for each individual to supplement the global or aggregate measure of intelligence (Kaufman, 2000). It is interesting to note that Wechsler saw his IQ tests as instruments measuring aspects of personality and thought of these tests as clinical instruments more than “psychometric devices” (Kaufman, 2000).

Current Measures

As noted previously, the most widely used intelligence tests today are the Wechsler scales (Kaufman, 2000). Given this fact, a brief description of the scales is warranted. As previously discussed, the Wechsler scales were not developed based on any particular theory of intelligence. According to Kaufman (2000), virtually all of the tasks on the Wechsler scales were adapted from other existing tests. Although Wechsler did ascribe to a definition of intelligence, his tests were not predicated on this definition.

The Wechsler scales are based on a “deviation” IQ. That is, the Verbal, Performance, and Full Scale IQ scores are based on a mean of 100 and a standard deviation of 15. Scaled scores with a mean of 10 and standard deviation of 3 are provided for each subtest, allowing the clinician to analyze each subtest separately. The Verbal Scale of the Wechsler tests is dependent on the child’s accumulated experience, usually that information which is learned in a formal schooling environment (Sattler, 1992). It is considered to be an index of verbal ability and crystallized intelligence. The Performance Scale, on the other hand, is more dependent on immediate problem-solving ability (Sattler, 1992). This scale is considered to be an index of nonverbal ability and fluid intelligence. The Full Scale IQ score is widely considered to be a measure of overall intellectual ability or what is commonly referred to as “g” (general or global factor).

In addition to the Wechsler scales, the Stanford-Binet: Fourth Edition (Thorndike et. al., 1986), is another widely used measure of intelligence. It is based largely on the principle of a general ability factor or “g” and provides a continuous appraisal of cognitive development from ages 2 years through young adult (Kaufman, 2000). On the Stanford-Binet, raw scores are converted into three types of standard scores: standard age scores for the subtests (mean = 50, standard deviation = 8), area scores (mean = 100, standard deviation = 16) and a Composite Score (mean = 100, standard deviation = 16).

The Composite Score is viewed as a global estimate of cognitive ability and is derived from four area scores (Verbal Comprehension, Abstract/Visual Reasoning, Quantitative Reasoning, and Short-Term Memory). The Verbal Comprehension factor is dependent on accumulated experience and taps verbal knowledge (Sattler, 1992). The Nonverbal Reasoning/Visualization factor is more dependent on immediate problem solving ability and is considered an index of nonverbal ability and fluid intelligence (Sattler, 1992). Lastly, the Memory factor is dependent on one's ability to sustain attention (Sattler, 1992).

Even though tests such as the Wechsler scales (Wechsler, 1989; 1991; 1997) and the Stanford-Binet: Fourth Edition (Thorndike et al, 1986) are widely used, many theorists believe that these measures are in some ways lacking. As with the growing dissatisfaction over the way intelligence has been historically defined, the measurement of intelligence has met with disapproval as well. Feeling that most intelligence tests do not accurately measure all aspects of intelligent thought, some researchers (i.e. Gardner, 1983; Chen & Gardner, 1997; Sternberg, 2000; Torff & Gardner, 1999) have focused on broader, nontraditional measurement approaches incorporating context and culture. Such dissatisfaction with historical definitions and measurement approaches has led researchers to consider alternative approaches such as social intelligence (Thorndike, 1927), multiple intelligences (Gardner, 1983), and the more recent concept of emotional intelligence (Mayer et al, 2000a; Bar-On, 1997; Goleman, 1995).

History of Emotional Intelligence

The development of emotional intelligence can be traced from historically prominent theorists such as Thorndike to more recent researchers such as Gardner. With the development of the concept of social intelligence (Thorndike, 1927), person variables such as interpersonal competence were first considered. Out of early research on social intelligence, Gardner (1983) developed the concept of personal intelligence. According to Gardner (1983), personal intelligence involves the degree of access an individual has to their own life—to one's range of affect and emotion. Gardner (1983) describes personal intelligence as consisting of two factors, interpersonal and intrapersonal intelligence, both of which make up a large part of the emotional intelligence construct.

Intrapersonal intelligence has been defined as the ability to develop a reliable working model of oneself, including one's desires, goals, anxieties, strengths, and problems, and the ability to draw upon that model as a means of understanding and guiding one's behavior (Haggerty, 1995). Intrapersonal intelligence is based on the degree to which one "knows oneself" and depends on core processes that enable one to distinguish among his own feelings. According to Gardner, Kornhaber, and Wake (1996), discrimination among one's feelings, intentions, and motivations yields a deep self-knowledge that is useful when making crucial decisions.

Interpersonal intelligence, on the other hand, has been defined as the ability to notice and make distinctions among other individuals, particularly among their moods, temperaments, motivations, and intentions, as well as the ability to act upon that knowledge (Haggerty, 1995). In contrast to intrapersonal intelligence, which is based on self-knowledge, interpersonal intelligence is based on the degree to which one is able to recognize others' feelings, beliefs, and intentions. Individuals high in interpersonal intelligence are often described as "people persons". Individuals in the helping professions generally possess a high degree of interpersonal intelligence (Sullivan, 1999).

Gardner argues that both intrapersonal and interpersonal intelligence meet the criteria of an intelligence because each contain problem solving features (Gardner, 1993). According to Gardner (1993), interpersonal intelligence allows individuals to comprehend and work with others, while intrapersonal intelligence enables the individual to comprehend and work with one's self. According to current theoretical definitions of emotional intelligence, both interpersonal and intrapersonal intelligence make up a large part of the emotional intelligence construct.

Competing Theories of Emotional Intelligence

Mayer, Salovey, and Caruso (2000), leading researchers in the field of emotional intelligence, have described three competing models of this construct. Each model is differentiated by the degree to which it focuses exclusively on mental abilities (ability models) or mixes mental abilities with personality attributes such as persistence, zeal, and optimism (mixed models). In defining emotional intelligence, Mayer et al (2000a), describe the interplay between motivation, emotion, and cognition, which are viewed as three fundamental classes of mental operations. Based on this interplay, the term

emotional intelligence is viewed by Mayer et al (2000a) as having something to do with the intersection of emotion and cognition.

Motivations, as described by Mayer et al (2000a), arise in response to internal bodily states and include drives such as hunger, thirst, need for social contact, and sexual desires. They are responsible for directing the organism to carry out simple acts to satisfy survival and reproductive needs. Emotions, on the other hand, signal and respond to changes in the relationships between the individual and the environment, including one's perception of their place within that environment. Emotions are said to respond not only to external changes in relationships but to internal perceptions of them as well. Cognition, the third mental operation, allows the organism to learn from the environment and solve problems in novel situations. According to Mayer et al (2000a; 1997), cognition often serves to satisfy motives or keep emotions positive, and includes abilities such as learning, memory, and problem solving.

Theory 1: Mayer and Salovey (1990; 1997)

In 1990, Salovey and Mayer introduced the term emotional intelligence and defined it as “a set of skills hypothesized to contribute to the accurate appraisal and expression of emotions in oneself and in others, the effective regulation of emotion in self and others, and the use of feelings to motivate, plan, and achieve in one's life”. This initial theory of emotional intelligence grew out of work on social intelligence as well as personal intelligence (Sullivan, 1999). According to Salovey and Mayer (1990), both emotional intelligence and social intelligence are subsets of Howard Gardner's personal intelligence. As defined previously, personal intelligence consists of two factors, interpersonal and intrapersonal intelligence. Social intelligence, on the other hand, has been defined by Thorndike (1920) as “the ability to understand and manage men and women, boys and girls—to act wisely in human relations”, which more closely resembles Gardner's interpersonal intelligence.

Accurate appraisal of emotion in oneself and others, the first domain of Salovey's & Mayer's 1990 theory of emotional intelligence, includes both verbal (language) and nonverbal (facial expressions, body language) communication as the key mediums through which emotions are appraised and expressed. The appraisal and expression of emotion in oneself involves the ability to learn about one's emotions, introspect on those

emotions, form coherent propositions based on those emotions, and express the content of those emotions (Salovey & Mayer, 1990). On the other hand, appraisal and expression of emotion in others includes the ability to perceive the emotions of others so as to ensure smoother interpersonal cooperation (Salovey & Mayer, 1990) or interaction. A key component of this area is empathy, which is the ability to comprehend another's feelings and to re-experience them oneself (Salovey & Mayer, 1990).

The second domain of Salovey's & Mayer's original theory, regulation of emotion, involves the degree to which individuals have access to knowledge regarding their own and other's moods. According to Salovey and Mayer (1990), the extent to which one reflects on personal knowledge regarding the moods of self and others represents a willingness and ability to monitor, evaluate, and regulate emotions. Regulation of emotion in the self includes the ability to alter and regulate one's own affective reactions, while regulation of emotion in others involves the ability to regulate and alter the affective reactions of others.

The final domain, the use of one's feelings to motivate, plan, and achieve in one's life, involves the ability to harness one's own emotions in order to solve problems. According to Mayer and Salovey (1990), emotion and mood affect problem solving in the following ways. First, mood swings may promote flexible planning, or the ability to generate multiple future plans. This concept is based on the assumption that people who are consistently in a "good mood" will perceive positive events as more likely to occur and negative events as less likely to occur. Such a mood may assist people in considering a wider variety of options and in generating a larger number of future plans.

Secondly, Salovey and Mayer (1990) claim that positive emotion may influence one's problem solving capabilities by altering memory organization in such a way that cognitive material is better integrated and diverse ideas are seen as more related. This principle has been demonstrated through research involving traditional creativity tasks, where subjects presenting with positive moods generated more creative responses (Salovey & Mayer, 1990; Isen, Daubman, & Nowicki, 1987; Isen, Johnson, Mertz, & Robinson, 1985). Third, powerful emotions have the potential to effect problem solving capabilities. For instance, Salovey and Mayer (1990) purport that attention is directed to new problems when powerful emotions occur. At such time, one's attention may be

focused on solving problems of greater immediate importance, thus leading to increased adaptability. Finally, mood may be used to motivate persistence at challenging tasks, which can assist in the performance of complex intellectual endeavors such as problem solving.

In 1993, Mayer and Salovey expanded their definition of emotional intelligence to “a type of social intelligence that involves the ability to monitor one’s own and others’ emotions, to discriminate among them, and to use that information to guide one’s thinking and actions”. The 1993 revision of the theory and subsequent definitional change was performed in order to link the emotional intelligence framework to past literature on constructs such as “traditional” intelligence, social intelligence, and personal intelligences. Much of the work surrounding this model revision, as with subsequent model revisions, has focused on proving the credibility of emotional intelligence as a “true intelligence”.

In Mayer et al’s newest model (2000a), the term emotional intelligence is described as the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in self and others. Each successive revision of the construct definition has been conducted in hopes of moving more toward an ability model and away from a mixed model. Mayer et al (2000a) describe the current model as an ability model because it focuses on the interplay of emotion and intelligence. Such a model differs from what they describe as “mixed models”, which include dispositions and traits like optimism, in addition to intelligence as traditionally defined. Mayer and Salovey’s initial definition of emotional intelligence (1990) is more representative of the mixed model.

In their current model, Mayer and Salovey view emotional intelligence as consisting of several discrete emotional abilities, which are theorized to develop hierarchically (Mayer, Caruso, & Salovey, 2000). The first and most basic skill involves the perception and appraisal of emotion. Skills in this area would include, but are not limited to, identifying and expressing emotions in one’s physical states, feelings, and thoughts, as well as identifying and expressing emotions exhibited by others (e.g. artwork, language, etc).

The second set of skills involved in emotional intelligence includes assimilating emotion and thought. Mayer et al (2000a), describe this as the ability to assimilate “basic emotional experiences into mental life, including weighing emotions against one another and against other sensations and thoughts and allowing emotions to direct attention”. An example of this skill would be using emotion to prioritize thinking in productive ways, such as holding an emotional state in consciousness so that one is able to compare it with a similar sensation in sound, color, or taste (Mayer et al, 2000a). The third level involves understanding and reasoning about emotions, such as the experience of specific emotions like sadness or happiness. This would include the ability to recognize emotions, to know how they unfold, and to reason about them.

At the highest level is the fourth and final skill, which involves the management and regulation of emotion in oneself and others. At this level, one should possess abilities such as (but not limited to) how to calm down after being angry, how to alleviate the anxiety of another person, how to stay open to feelings, and how to monitor and regulate emotions reflectively so as to promote emotional growth (Mayer et al, 2000a).

Mayer’s and Salovey’s model of emotional intelligence is the most researched and operationalized theory presently available. Therefore, it is the most respected and accepted theory as well. However, with the movement toward “ability” and away from dispositions and traits, this model is becoming increasingly “hard”. That is, the model focuses on abilities that are specifically measurable, paying little attention to those skills that are difficult to assess objectively. The model seems to have forgotten the theoretical value of many “soft skills”, dispositions and traits like creativity and optimism, because they are difficult to measure and are viewed as personality traits. As such, we will now turn our attention to models that attempt to integrate such skills.

Theory 2: Goleman (1995)

Daniel Goleman leads the popular movement in understanding emotional intelligence. His book, Emotional Intelligence (1995), has been viewed by many as the catalyst for the popularization of the term “emotional intelligence” and has sparked much interest in the subject. Unfortunately, Goleman’s work has been criticized for being “unscientific” (Epstein, 1998; Rouse, 1998; Seligman, 1995). However, given the popularity of his work, and his focus on children, Goleman’s theory is worth considering.

In his theory, Goleman describes emotional intelligence as consisting of five basic domains. His model is described as developmental because each succeeding domain builds upon the skills learned in preceding domains. The first domain, knowing one's own emotions, is central to his concept of emotional intelligence. Goleman describes this domain as the "keystone" of emotional intelligence, characterized by self-awareness or the ability to recognize a feeling as it happens. The second component is the ability to manage one's own emotions. The key ability of this domain is having the skill to handle various feelings, such as anxiety, gloom, or irritability, in appropriate ways (Goleman, 1995). Moreover, Goleman asserts that people who have poor skills in this area are always battling feelings of distress, while those who have superior abilities can bounce back quickly from stressful life events.

A third domain of Goleman's theory is the ability to motivate one's self. According to Richardson (2000), this means that one is able to focus their enthusiasm, confidence, and concentration on achieving an acceptable goal. Furthermore, emotional self-control, defined by Goleman as delaying gratification and stifling impulsiveness, is viewed as underlying accomplishment in every area. The fourth component is the ability to recognize emotions in others. The crucial developmental component of this domain is empathy. Goleman describes empathy as the fundamental "people skill", which helps one be more attuned to the social signals that indicate what others want or need. Finally, the last domain calls for the ability to handle relationships. With the mastery of this domain, one is able to manage emotions in others or to become "socially competent". According to Goleman, social competency includes the skills needed for popularity, leadership, and interpersonal effectiveness. Recently, Goleman (1998) has asserted that the ability to manage emotions is of particular importance for achieving success in the workplace.

According to Mayer et al (2000a), Goleman's theory is a "mixed model" because it includes a compound conception of intelligence that includes mental abilities as well as other dispositions and traits, such as optimism. Mayer et al (2000a) are somewhat critical of such models because they focus on describing the personality characteristics which may accompany emotional intelligence, leading to less predictive validity. Furthermore, researchers are critical of Goleman because he makes claims that portray emotional intelligence as being vastly more important than other traditional abilities. For example,

he claims that emotional intelligence can account for much of the success experienced in school, at home and at work (1995). He states that increased emotional intelligence will lead to less aggressiveness and rudeness, more popularity, improved learning, and better decisions about drugs, alcohol, and sex. Furthermore, Goleman claims that IQ contributes to 20% of the factors that determine life success, leaving 80% to other factors such as emotional intelligence. Mayer et al (2000a) note that such widespread predictive ability by one psychological entity is tentative, at best.

Theory 3: Bar-On (1997)

Bar-On, developer of the Emotional Quotient Inventory (EQ-i); (Bar-On, 1997) and the corresponding Youth Version (EQ-i: YV); (Bar-On & Parker, 2000), advances a theory of emotional intelligence that seeks to understand why some individuals are better able to succeed than others. He has defined emotional intelligence as abilities related to understanding oneself and others, relating to people, adapting to changing environmental demands, and managing emotions (Bar-On & Parker, 2000; Pfeiffer, 2001).

After reviewing the literature concerning personality characteristics relating to life successes (Mayer et al, 2000a), Bar-On identified five areas relevant to such success. These five areas compose his theory of emotional intelligence and correspond to the five areas measured by his instruments of emotional intelligence. The first area, intrapersonal skills, involves emotional self awareness, self-regard, self-actualization, and independence. The second area, interpersonal skills, involves interpersonal relationships, social responsibility, and empathy. Third, his adaptability scales measure problem solving, reality testing, and flexibility. The fourth area, stress-management, includes stress tolerance and impulse control. Finally, general mood is the fifth domain. This area includes happiness and optimism, two traits commonly viewed as personality characteristics. Mayer et al (2000a) note that Bar-On is cautious in his claims concerning his model of emotional intelligence, and state that he views the EQ-i as measuring more of the “potential” to succeed rather than success itself.

Although the Bar-On and Goleman models are very similar, they differ in several key ways. First, the Bar-On model is much more restrictive than the Goleman model in the assertions made concerning the potential benefits of increased emotional intelligence. As discussed previously, Goleman (1995) makes exaggerated claims with respect to the

potential increase in overall life success and decrease in antisocial tendencies for anyone fortunate enough to improve their level of emotional intellectual ability. Second, the Bar-On model has been the subject of much more academic research than the Goleman model and is based on a history of research. Finally, the target audience of the two models differ, with Goleman primarily pandering to “big business” and Bar-On the educational community.

In conclusion, there appears to be a great divide between the ability and mixed models of intelligence. While the ability models such as Mayer’s and Salovey’s are generally more accepted by psychological researchers, mixed models such as Goleman’s and Bar-On’s should have their place within the emotional intelligence literature. Although the mixed models are more difficult to operationalize, their inclusion of dispositions and traits is valuable. Unfortunately, because of general unacceptance, many of the mixed models of emotional intelligence are moving away from the psychological research community and toward popular culture. Such a phenomenon is regrettable, as this decreases the chance of further research on these theories.

Comparison of Current Theories of EI with Characteristics of Intelligence

As discussed earlier, there is a growing consensus as to the central constructs of intelligence. Many agree that intelligence is composed of an ability to adapt to environment, higher order thinking skills such as reasoning, problem solving, and decision making, metacognitive processes, and expert knowledge. According to Sternberg (1997), individuals act intelligently when they successfully adapt or react to their environment as well as when they shape or change the environment to meet their needs. Furthermore, Mayer and Mitchell (1998) argue that the “intelligence system” consists of a capacity for identifying or inputting information, and a capacity for processing information through both immediate symbol manipulation and reference to expert knowledge. Based on these commonly agreed upon characteristics, each of the three major theories of emotional intelligence will be discussed in terms of how they relate (or are unrelated) to the facets of intelligence.

Mayer and Salovey

According to Mayer, Salovey, & Caruso (2000b), the term emotional intelligence should be conceptualized as a type of intelligence that processes and benefits from

emotions, and that is composed of mental abilities, skills, or capacities. Mayer et al (2000b) view the term intelligence as encompassing mental traits whose primary purpose is problem solving in one or another content domains. Emotions, on the other hand, are thought to satisfy a complex, coherent, and consistent symbol system that can be puzzled over, understood, and planned for in abstract thought. It is this ability to “puzzle over”, understand, and plan that constitutes the processing of emotions, which in turn can be viewed as intelligent behavior, or rather, intelligent thought.

In the Mayer et al theory (2000a), the ability to process affective information can be viewed as an intellectual aptitude consistent with Sternberg’s (1997) view of intelligence (Pfeiffer, 2001). Encompassed in the processing of affective information is what Mayer describes as one’s ability to “manage and regulate emotions in oneself and others” (Mayer et al, 2000a). Given that such an ability takes into account one’s capacity to monitor and regulate emotions reflectively, it is clear how this relates to metacognition, another major component of “intelligence”. By monitoring and regulating emotions reflectively (and using such knowledge to act on the environment through alleviating anxiety in stressful situations, for example), one is aware of their own thoughts and emotions and may control such thoughts and emotions as well (metacognition). These metacognitive processes lead to effective environmental adaptation because they enable one to better deal with and conform to demands placed on them by emotionally laden environmental stressors. In short, by defusing our own emotions, we are adapting to the environment, and by recognizing and defusing the emotions of others, we are shaping or changing the environment to meet our own needs.

In conclusion, Mayer et al’s (2000a; 2000b) theory of emotional intelligence appears to encompass many of the characteristics encompassed by the term “intelligence”, particularly information processing aspects such as reasoning, problem-solving, adaptation, and metacognition. However, it remains to be seen if these characteristics, as related to emotional intelligence, can be adequately distinguished from other psychological constructs such as personality, social skills or emotional competency. With the publication of Mayer et al’s (2000a) ability measure of emotional intelligence (e.g. MEIS), hopefully the abilities described by this model can be adequately tested to ascertain the extent to which they qualify as a type of intelligence.

Goleman

As discussed earlier, Goleman's writings have become largely popular in public, non-scholarly settings. In his theory, Goleman integrates information from various interdisciplinary fields such as neuroscience, psychiatry, and child development (Pfeiffer, 2001). However, it is his intentional non-scholarly writing (Pfeiffer, 2001) and sweeping generalizations that many researchers and academicians take issue with. Such claims as emotional intelligence will lead to less aggressiveness, less rudeness, increased popularity, improved learning, and better decisions about drugs, alcohol, and sex (Goleman, 1995; Mayer et al 2000a) are tentative, at best, and lead researchers to scoff at the theory of emotional intelligence, in general. Nevertheless, due to the popularity of Goleman's writings and assumptions, his theory is worth considering.

Some of the aspects of Goleman's theory can and do relate to the agreed upon characteristics of intelligence. For instance, central components of his theory such as knowing your emotions and demonstrating an ability to manage your emotions are arguable examples of information processing or reasoning abilities. One must certainly be processing emotionally laden information in order to determine what their feelings are and in turn, how to manage those feelings. Additionally, the ability to "handle relationships" by recognizing emotions in others and deciphering what they want or need can be thought of in terms of an ability to adapt to environmental demands. If, for example, one is consistently late for work and encounters an angry boss upon entering the workplace, wouldn't it be "highly adaptable" to understand that reporting to work in an untimely fashion makes the boss angry? Upon making this revelation, one is able to get up earlier, get to appointments on time and defuse the anger of the person in charge, thus, retaining their employment.

Unfortunately, many of the aspects of Goleman's theory have been heretofore considered by the academic research community as personality traits or social skills. For example, emotional intelligence as described by Goleman is thought to encompass characteristics such as motivation, leadership ability, and optimism. Such traits have confounded the construct validity as well as the discriminant validity of his theory, as well as that of other mixed models such as Bar-On's. However, many of the characteristics described by Goleman probably do lead to a mastering of one's social

environment. This, coupled with his wide sweeping claims, is what captures the minds of those reading his theory in popular outlets such as magazine articles. Such claims offer hope to those who are socially incompetent or who have wide sweeping life problems. As such, the scientific validity of the theory is more than likely of no concern to his followers.

Bar-On

Bar-On's theory was developed after reviewing the literature concerning personality characteristics relating to life success. This model is purported to describe "emotional and social competence" (Bar-On, 2000a, p. 364); personal communication (James Parker, 2000), and "key components of effective emotional and social functioning that lead to psychological well-being" (Bar-On, 2000). However, Bar-On's theory is a widely recognized theory of emotional intelligence and is included in the emotional intelligence literature.

In terms of characteristics of intelligence, the Bar-On model consists of factors such as adaptability, which encompass problem-solving abilities and reality testing. As discussed previously, the ability to know one's own emotions, the emotions of others, and to utilize this knowledge to effectively adapt to the environment have been argued as intelligent thought. However, like Goleman's model, the Bar-On model encompasses many characteristics thought to be strongly related to personality. For example, general mood is a domain of Bar-On's theory that deals with one's happiness and level of optimism. Such characteristics are commonly viewed as personality traits (Mayer et al, 2000a).

Although some characteristics of Bar-On's model are related to personality, one must remember that he was initially searching for characteristics leading to life success. The outcome of such research appears to be a model that contains aspects of intelligent thought as well as personality characteristics. As such, it would probably be more accurate to consider Bar-On's model as one of emotional/social competence or ability to succeed than one of emotional intelligence. Possibly, the variable sought after by Bar-On (life success), is a combination of what Mayer et al (2000a) described as emotional intelligence (ability model) and emotional/social competency as described by Bar-On.

Such an outcome would explain the confounding of the emotional intelligence construct with personality characteristics and traits.

Current Measures of Emotional Intelligence

Several current measures of the emotional intelligence construct are promising in terms of validity and reliability. Such findings are important in providing evidence for the validity of emotional intelligence as a measurable construct, since earlier measures were not psychometrically sound (Davies et al, 1998). With the development of more accurate and stable measures come several breakthroughs. First, the establishment of emotional intelligence as a “real and valid intelligence” can be logically argued. This will lend much to the credibility of the construct. Secondly, the domain may be adequately researched and new research may be applied in clinical settings. Finally, the development and/or refinement of reliable and valid measures for different populations, such as children and younger adolescents can begin. This is particularly important, as we must ascertain whether or not emotional intelligence can be measured in children and to what extent it differs in children and adults.

Most current measures of emotional intelligence focus exclusively on adults and those in late adolescence (18 and over). Therefore, a review of the measures presently available for research will focus on this population. However, the researcher recognizes the need for accurate and stable measures of emotional intelligence for those in childhood and/or early adolescence.

Both ability measures and self-report measures are currently used to measure emotional intelligence. Although measures based on mental ability models are typically more reliable and valid than self-report measures, self-report measures are still useful because they are easy to administer, tap internal experiences often difficult to obtain by ability measures, and assess ongoing conscious processes related to emotional thinking (Mayer et al, 2000a). According to Mayer et al (2000a), most ability models of emotional intelligence are measured by ability measures, while mixed models have traditionally resorted to the use of self-report measures.

Ability Measures

Multifactor Emotional Intelligence Scale (MEIS). Mayer et al (2000a), developed the Multifactor Emotional Intelligence Scale (MEIS), an ability measure, to

operationalize their theory of emotional intelligence. The MEIS consists of 12 ability measures, which are divided into 4 branches. These branches include (1) perceiving, (2) facilitating, (3) understanding, and (4) managing emotion. These four branches correspond to the four levels of their theory.

Branch one primarily measures one's ability to perceive and identify the emotional content of various stimuli. The stimuli included in this measure are faces, music, designs, and stories. Branch two measures one's ability to assimilate emotions and cognitive processes. It is made up of two scales: (1) Synesthesia, which measures an individual's ability to describe emotional sensations and their parallels to other sensory modalities (e.g. How hot is anger) and (2) Feeling biases, which deals with the degree to which one's mood affects feelings toward other people (Mayer et al, 2000a).

The third branch of the MEIS, Understanding Emotions, deals with reasoning about and understanding emotion. It consists of the following four tasks: (1) blends, which concern the ability to analyze complex emotions, (2) progressions, which deals with people's understanding of how emotional reactions proceed over time, (3) transitions, which deals with how people shift between emotions (e.g. from fear to calm), and (4) relativity, which asks the participant to estimate the feelings of two characters who have been depicted in a conflictual social encounter.

The development sample for the MEIS consisted of adults aged 17 to 70, of which a majority were college students and female. The sample was representative of 1990 census data and was above average in level of education. The reliability of the test was found to be adequate, with alpha coefficients ranging from .49 to .94. All but two subtests had alpha coefficients greater than or equal to .70. Both unrotated and rotated (oblique rotation) factor solutions yielded a three-factor solution. The first factor represents a general measure of emotional intelligence, the second factor represents managing and perceiving emotions, and the third factor represents managing emotions. The three factors were shown to intercorrelate with coefficients ranging from .33 to .49. The general emotional intelligence scale was determined to correlate moderately with verbal intelligence ($r = .36, p < .001$) and empathy ($r = .33$).

The MEIS was also administered to a sample of adolescents ranging from 12-16 who deviated somewhat from the ethnic composition of the United States. Only selected

portions of the MEIS were administered to the sample, due to time constraints and concerns over the age-appropriateness of the material. The express purpose of this administration was to determine if adults functioned at higher levels of emotional intelligence than adolescents did. It was determined that adults do in fact perform at higher ability levels than adolescents, which is consistent with theory.

In conclusion, the MEIS was found to be a reliable instrument that demonstrated some evidence of construct validity (emotional intelligence as defined by Mayer, Caruso, and Salovey, 2000a). However, more studies should be conducted to adequately assess the psychometric properties of this instrument as well as to provide further evidence of validity. Although the primary intention of the MEIS is for use by adults, several of the scales were administered to adolescents. This lends support to the notion that emotional intelligence can be adequately assessed in children aged 12 to 16. However, the adequacy of measurement in children under 12 remains to be seen.

Emotional Intelligence Scale for Children (EISC). The Emotional Intelligence Scale for Children (EISC) (Sullivan, 1999) was developed in an attempt to construct a valid and reliable ability measure of young children's emotional intelligence, based on Mayer et al's (2000a) conceptualization (i.e. a downward extension of their model). The scale included items adapted from the MEIS (Mayer, Caruso, and Salovey, 2000) as well as items constructed on the basis of developmental research. It was composed of five subtests: Faces, Music, Stories, Understanding, and Managing.

Preliminary analyses of the EISC (Sullivan, 1999) revealed that the internal consistency of the EISC subscales ranged from low to moderate (standardized alphas ranged from .39 to .66), suggesting an inadequate degree of item homogeneity. Furthermore, the Total EI scores were found to possess only a moderate degree of internal consistency as well ($\alpha = .56$). However, evidence supporting the concurrent validity of the instrument was obtained by comparing the EISC with several measures thought to tap the domain of emotional intelligence. The EISC was determined to be developmental in nature, as older children performed better than younger children, which is a sound theoretical finding.

Based on the preliminary analyses of the EISC (Sullivan, 1999), Sullivan (1999) has suggested continued research and revisions on the instrument. Further research

should include revisions of the EISC subtests as well as test administration improvements (Sullivan, 1999). With such improvements, the psychometric properties of the instrument will hopefully improve.

With the development of the EISC, some important conclusions concerning the measurement of emotional intelligence in children can be drawn. First, several aspects of theoretical ability models developed for adults (i. e. Salovey, Caruso, & Mayer, 2000) can be extended downward to children. One such aspect is the developmental nature of emotional intelligence. If emotional intelligence is a hierarchical, developmental phenomenon, then children should possess some degree of the construct early on, just as with traditional intelligence models. Second, the development of the EISC has demonstrated that using a performance based measure of emotional intelligence in children is currently an unreliable method. Although the adult performance based measure recently developed by Mayer, Caruso, and Salovey (2000) has sound psychometric properties, it was constructed only after the development of several self-report measures. Therefore, the developer of the EISC could have skipped an important step in the development of psychometrically sound measures of emotional intelligence in children. It is possible that self-report measures of mixed models of emotional intelligence help refine what ability models of emotional intelligence should and should not measure.

Mixed-Model Based Measures

Emotional Competency Inventory. The Emotional Competence Inventory is based on the Goleman (1998) theory of emotional intelligence and is founded on the competencies that enable people to demonstrate intelligent use of their emotions in managing themselves and working effectively with others (Boyatzis, Goleman, & Rhee, 2000). It was predicated on the 25 competencies associated with emotional intelligence, as defined by Goleman, in the following 5 clusters: (1) Self-Awareness, (2) Self-Regulation, (3) Motivation, (4) Empathy, and (5) Social Skills. According to Boyatzis et al (2000, p. 345), the ECI was developed for “ease of use, comprehensiveness, and validity”. Many of the questions utilized in this instrument originated from the Self Assessment Questionnaire (Boyatzis, 1994). In fact, according to Boyatzis et al (2000, p. 345) “about 40% of the new instrument, the ECI, was from the earlier questionnaire”. It

should be noted that the ECI is for use with adults, primarily in “business-type” settings (e.g. normative sample consisted of managers, salespeople, and graduate students in business programs), and is yet to be commercially published.

In terms of psychometric properties, Boyatzis et al (2000) report alphas ranging from .54 to .80 for the ECI’s 20 scales. A factor analysis yielded a 3-factor solution. These three factors were labeled as follows: (1) Self-Awareness, (2) Self-Management, and (3) Social Skills. On the basis of factor and reliability analyses of the data on the first version of the ECI, some of the scales were reclassified from Goleman’s model. In the current version, a fourth cluster was added, Social Awareness, which consists of several scales taken from the Social Skills cluster. Further validation studies, addressing aspects such as criterion-related, construct, and predictive validity are unbeknownst to this author.

Given that the ECI is a non-commercially published instrument, many questions as to its psychometric properties remain. It has yet to undergo adequate validation or scientific review. Therefore, information concerning this instrument’s validity is limited, at best, and researchers would be wise to use the ECI with extreme caution.

Bar-On Emotional Quotient Inventory (EQ-i). According to the Bar-On model, emotional intelligence pertains to the emotional, personal, and social dimensions of intelligence (Bar-On & Parker, 2000). Emotional intelligence is comprised of abilities related to understanding oneself and others, relating to people, adapting to changing environmental demands, and managing emotions (Bar-On & Parker, 2000). The Bar-On Emotional Quotient Inventory is based on the Bar-On model of emotional and social intelligence, which also formed the theoretical basis for the companion Youth Version of this instrument.

The Bar-On Emotional Quotient Inventory (EQ-i) is 133-item self-report measure of emotional intelligence. Items are presented to subjects in the form of declarative statements. The subject is then asked to rate the degree to which the statement accurately describes them on a five point scale (1 = not true of me, 5 = true of me). Scores are summed to yield a total score of emotional intelligence, five higher-order composite dimensions, and 15 lower-order composite dimensions. The raw scores on each scale are converted to standard scores with a mean of 100 and a standard deviation of 15.

The EQ-i is based on Bar-On's theory of emotional intelligence, as previously described, and was designed to operationalize the theory. In the development sample, a factor analysis yielded 13 individual factors that were somewhat consistent with theory. The first three factors were found to explain the most variance, with the remaining 10 factors explaining between 3 to 1 % of the test variance (Mayer et al, 2000a). The 13 subscales were found to be moderately intercorrelated, making a one-factor solution possible.

Construct validity was further evaluated by correlating the EQ-i subscale scores with various scale scores of other measures. The measures upon which the EQ-i construct validity was examined include the following: Sixteen Personality Factor Questionnaire (16PF; Cattell, Eber, & Tatsouka, 1970), Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989), Eysenck Personality Questionnaire (EPQ; Eysenck, H. J. & Eysenck, S. B. G., 1975), Personality Assessment Inventory (PAI; Morey, 1991), Ninety Symptom Check List (SCL-90; Derogatis, 1973), Personality Orientation Inventory (POI; Shostrom, 1964, 1974), Short Acculturation Scale (SAS; Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987), Beck Depression Inventory (Beck & Steer, 1987), Zung Self-Rating Depression Scale (Zung, 1965), and Kircaldy Quality of Life (KQoL; Kirkcaldy, 1995). These tests were administered concomitantly with the EQ-i in six countries (Argentina, Canada, Germany, Israel, South Africa, and the United States) over a 12-year period (1985-1997).

According to Bar-On (1997), the total EQ scale is correlated with "three of the best indicators of emotional functioning on the 16PF": Emotional Stability (.72), Apprehension (-.55), and Tension (-.44). The total EQ scale also correlated with other indicators of emotional functioning such as the Global Severity Index of the SCL-90 (-.85), Neuroticism-Stability of the EPQ (-.36), the Beck Depression Inventory (-.56), and the Zung Self-Rating Depression Scale (-.66). The total EQ scale demonstrated high negative correlations with the PAI Anxiety (-.71), Depression (-.76), Schizophrenia (-.54), and Borderline Features (-.77). According to Bar-On, the correlations between the EQ-i and the PAI are particularly significant since the PAI scales mentioned above are strong indicators of pathology, which is often manifested by a serious breakdown in normal emotional functioning and in general coping ability. The correlations of the 15

content scales with the 10 instruments mentioned above will not be discussed as they are beyond the scope of this paper. The reader is referred to the technical manual of the EQ-i (Bar-On, 1997) for an in depth discussion of each scale and its correlates.

Evidence for convergent validity was provided via the results of several research studies comparing the EQ-i to measures of acculturation, attributional style, coping with occupational stress, job performance/work satisfaction, and self vs. observer ratings of emotional intelligence. For the self vs. observer ratings of emotional intelligence, three judges viewed tapes of interviews conducted with study participants and were then asked to rate each participant on each factor (subscale) of the EQ-i. The ratings of the three judges were averaged to create a mean rating of each factor and overall emotional intelligence. The observer ratings were then correlated with the interviewee's EQ-i subscale scores. In general, the degree of correlation between the pooled observer ratings and the inventory subscales were moderate (average correlation coefficient of .52).

Regarding other convergent validity studies, the total EQ scale was found to be significantly correlated with a measure of acculturation ($r = .34$) and a measure of emotional health ($r = -.52$). According to Bar-On (1997), these results indicate that the EQ-i is capable of measuring one's ability to cope with environmental demands and pressures, which are prominent aspects of emotional intelligence. The total EQ scale also evidenced a moderate correlation with a measure of attributional style ($r = .37$) designed to assess one's explanatory approach (i.e., the explanations people give to explain outcome or events). Instruments assessing ability to cope with occupational stress and job performance/work satisfaction evidenced moderate associations with the total EQ score as well.

To assess divergent validity, the Total EQ score was correlated with IQ, resulting in a low, positive correlation ($r = .12$). Moreover, the Total EQ evidenced a modest correlation with the Reasoning subtest of the 16 PF ($r = .13$), which measures abstract versus concrete thinking. The Reasoning subtest is based on questions tapping verbal, numerical, and logical reasoning. Bar-On also discusses different factors and subscales from various instruments such as the 16 PF and MMPI-2 that are not significantly correlated with the subscales of the EQ-i. For example, Bar-On (1997) cites the low (nonsignificant) correlations between the Assertiveness scale of the EQ-i and the

Psychopathic Deviant ($r = .09$), Antisocial Practices ($r = .15$), and Anger ($r = .21$) scales of the MMPI-2. According to Bar-On (1997), such statistics suggest that the Assertiveness scale does not measure aggression.

Lastly, Bar-On (1997) discusses evidence for discriminant validity. In several studies, Bar-On attempts to differentiate between individuals who are more emotionally intelligent from those who are less emotionally intelligent. In these studies, the EQ-i was found to discriminate between individuals who were successful in coping with stressful environmental demands and pressures from those who were unsuccessful. The EQ-I differentiated between special “clinical” samples (e.g. convicted criminals, cardiac patients, and psychiatric patients) and matched control groups from the same population (e. g. locality) as well.

In a third attempt at providing evidence for discriminant validity, Bar-On attempts to differentiate among levels of emotional functioning (i.e. above average emotional functioning, average emotional functioning, and below average emotional functioning). Participants were grouped based on scores from the 16 PF Emotional Stability, Apprehension, and Tension scales. According to Bar-On (1997), “the differences among the groups were large in magnitude and statistically significant for many scales.” However, it should be noted that the same scales used to differentiate among the groups were the same scales Bar-On cited as having high correlations with the Total EQ score. Thus, such differentiation among groups doesn’t necessarily provide evidence of discriminant validity, but rather, raises questions as to the construct validity of the instrument. Given the Total EQ score’s high correlation with the Emotional Stability scale of the 16 PF ($r = .72$), it is probable that the two scales are measuring the same construct, namely an aspect of personality.

In an additional study considering the psychometric properties of EQ-i, Dawada and Hart (2000) suggest that “overall,...the EQ-i is a promising measure of emotional intelligence”. Internal consistency was measured using Cronbach’s alpha and item homogeneity was assessed using mean inter-item correlation. Internal consistency of the EQ total and composite scales was found to be quite good (alpha’s = .81 to .96), while the internal consistency of the subscales was variable. The EQ total scale was found to be

less homogenous than the composite scales. Convergent and discriminant validity was addressed, resulting in similar findings as those described above.

The EQ-i has been shown to provide accurate and stable results over time, as evidenced by Dawada's and Hart's study (2000). However, it is a mixed model of emotional intelligence and includes more aspects of personality than ability models. Although this measure has shown strong positive correlations with positive affect and negative correlations with negative affect, the degree to which it parcels out new explained variance over and above that of existing personality measures has yet to be determined. Additionally, its predictions of academic or career success have not been determined (Mayer et al, 2000a).

Bar-On Emotional Quotient Inventory: Youth Version. The Bar-On Emotional Quotient Inventory: Youth Version (Bar-On & Parker, 2000) is a 60 item self-report instrument designed to measure emotional intelligence in young people age seven to eighteen years. It consists of the following seven scales: intrapersonal, interpersonal, adaptability, stress management, general mood, positive impression, Total EQ, and the inconsistency index. According to Pfeiffer (2001), the inventory is geared to a fourth grade reading level and takes about 25 minutes to complete. Raw scores are converted to standard scores with a mean of 100 and a standard deviation of 15. The instrument uses a 4-point Likert style format (very seldom true of me, seldom true, often true, and very true) and summons self-appraisals about having fun, ease at telling others how you feel or talking about deep feelings, the importance of friends, and knowledge about how other people are feeling. The normative sample and psychometric properties of this instrument will be presented in depth at a later point in this paper.

Emotional Intelligence Scale. The emotional intelligence scale developed by Schutte et al (1998) has not been commercially published, with its primary use intended as a research tool. According to Schutte et al (1998) the catalyst for the development of their instrument was the need for a brief, validated measure of emotional intelligence. Schutte et al based their instrument on the theoretical construct of emotional intelligence put for by Salovey and Mayer in 1990. The purpose for utilizing this theoretical conceptualization was that it allowed for integration of "various dimensions of the individual's current state of emotional development" (Schutte et al, 1998) as well as the

integration of other current models of emotional intelligence. The underlying rationale for the Schutte et al instrument makes it qualify for what has heretofore been described as a mixed model of emotional intelligence. As such, the use of a self-report format would be the appropriate assessment style (Mayer et al, 2000a).

The Schutte et al emotional intelligence instrument (1998) was developed on a sample of 346 participants with a mean age of 29. They were recruited from a variety of locations including university and community settings. The majority of the participants were female.

A principal components, orthogonal-rotation factor analysis was used to arrive at the final 33-item instrument. Although four factors emerged from the analysis of the initial item pool, the 33 items loading on the first factor (all with loading of .4 or greater) were selected to comprise the instrument. These items were selected because factors two through four were not conceptually distinct from factor one. According to Schutte et al (1998), the 33 items represent a general measure of emotional intelligence and represent all portions of the 1990 conceptual model belonging to Salovey and Mayer.

Unfortunately, the unidimensionality of this instrument has been called into question. In a study by Petrides and Furnham (2000), a confirmatory factor analysis procedure obtained results that were inconsistent with a one-factor solution (GFI = .69, AGFI = .65). To better understand the underlying factor structure of the Schutte instrument, Petrides and Furnham (2000) performed an exploratory factor analysis, which yielded a four-factor model. Such a solution was shown to account for 40.4% of the total variance, which is a substantial improvement over the 17.4% explained by the Schutte model. Therefore, based on these results, the one-factor solution utilized by the Schutte et al instrument is dubious at best.

In Schutte et al's initial reliability analysis, internal consistency was evidenced by a Cronbach's alpha of .90, followed by a second internal consistency analysis yielding an alpha of .87. The two-week test-retest reliability was .78. Validity studies revealed that those with high scores on the instrument possessed greater attention to feelings, greater clarity of feelings, increased mood repair, greater optimism, and less pessimism, depression, and impulsivity. Furthermore, scores on the measure obtained from students at the beginning of the school year predicted grade point average at the end of the year

[$r(63) = .032, p < .01$]. Discriminant validity analyses revealed that scores on the emotional intelligence measure were not significantly correlated with SAT scores ($r = -.06$) nor any dimension of the NEO PI-R (Costa & McCrae, 1992) with the exception of openness to experience ($r = .54, p < .009$). The Flesch-Kincaid reading level was judged to be 5.68, which indicates a reading level of approximately fifth grade.

Unfortunately, work by Petrides and Furnham (2000) revealed several problems with the Schutte et al (1998) study. First, the authors critiqued the original factor analysis performed by Schutte et al. Petrides and Furnham (2000) noted that Schutte's decision to retain only one of the four originally extracted principal components left 82.6% of the total variance of the instrument unexplained (explained variance 17.4%). Furthermore, these authors argue that the varimax factor analysis procedure was a poor choice in and of itself. According to Petrides and Furnham (2000), an orthogonal rotation, such as the varimax rotation, distributes variance away from a general factor, thereby precluding the emergence of a general factor. Therefore, the type of statistical procedure utilized in the Schutte study probably eliminated the underlying general factor they sought. Also, a varimax rotation does not make sense from a theoretical standpoint as the three underlying components of emotional intelligence should not be assumed to be independent of one another (Petrides & Furnham, 2000). Finally, as mentioned previously, the unidimensionality of the instrument was found to be questionable due to a lack of model fit when tested using the confirmatory factor analysis procedure.

In conclusion, the Schutte et al (1998) instrument has not proven to be as promising as first suggested following additional validity studies. Although it appears to possess face validity (Petrides and Furnham, 2000) as well as evidence of predictive and discriminant validity, further research with the instrument should probably be cautioned.

Analysis of the Bar-On Emotional Quotient Inventory: Youth Version

The current study will focus on the Bar-On Emotional Quotient Inventory: Youth Version (EQ-i: YV; Bar-On & Parker, 2000). This instrument was selected for several reasons. First, the EQ-i: YV is currently the only commercially published instrument for measuring emotional intelligence in children and adolescents. Second, given the lack of psychometrically sound instruments assessing emotional intelligence in child populations, this instrument deserved further consideration. By further exploring the

psychometric properties of the EQ-i: YV, researchers may be able to examine the phenomenon of emotional intelligence in children, which could lead to refinement in the ways we conceptualize both emotional intelligence and traditional intelligence in general.

As mentioned previously, the Bar-On model of emotional intelligence pertains to the emotional, personal, and social dimensions of intelligence (Bar-On & Parker, 2000). Emotional intelligence is believed to be comprised of abilities related to understanding oneself and others, relating to people, adapting to changing environmental demands, and managing emotions (Bar-On & Parker, 2000). The Bar-On Emotional Quotient Inventory: Youth Version is based on the Bar-On model of emotional and social intelligence, which also formed the theoretical basis for the Bar-On Emotional Quotient Inventory.

Bar-On began developing his theory of emotional intelligence in 1983 by examining various factors thought to be key components of effective emotional and social functioning which lead to psychological well-being (Bar-On, 2000). The results of this research led to the identification of the following five factors: intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood (see previous discussion of Bar-On's theory for full definition). After defining these factors, a psychometric instrument (the Bar-On Emotional Quotient Inventory) was constructed in 1997. After refining this instrument, a companion youth version was constructed in 2000 (EQ-i: YV).

The Bar-On Emotional Quotient Inventory: Youth Version (Bar-On & Parker, 2000) is a 60 item self-report instrument designed to measure emotional intelligence in young people age seven to eighteen years. It consists of the following scales: intrapersonal, interpersonal, adaptability, stress management, general mood, and Total EQ. This instrument also provides two validity scales: positive impression and inconsistency index. Each scale will be briefly described. The first scale, intrapersonal, involves the ability of the individual to understand their emotions as well as communicate and express feelings and needs. The second scale, interpersonal, measures one's ability to form and maintain satisfying relationships with others. The adaptability scale involves measuring one's ability to manage. The fourth scale, stress management, includes one's ability to remain calm in the face of stressful events. The general mood scale measures

optimism and positive outlook. Finally, the total EQ scale is a measure of one's ability to be effective in dealing with daily demands while remaining happy or satisfied.

The positive impression scale is a validity indicator that suggests the degree to which an individual may be trying to create an overly positive self-impression. A second validity indicator, the inconsistency index, denotes the degree to which there are inconsistencies in the way an individual responded to similarly worded items.

Bar-On's model is purported to describe "emotional and social competence" (Bar-On, 2000, p. 364); personal communication James Parker, 2000), and "key components of effective emotional and social functioning that lead to psychological well-being" (Bar-On, 2000). However, instruments designed to measure this model (e. g. EQ-i & EQ-i:YV) are described as tests of "emotional intelligence" (Bar-On, 2000, p. 364). Specifically, Bar-On states that the EQ-i can be "accurately described as a self-report measure of emotionally and socially competent behavior that provides and estimate of one's emotional and social intelligence" (Bar-On, 2000, p. 364). As such, test users may be somewhat confused as to exactly what these tests are measuring (e.g. emotional/social competence or emotional intelligence). This lends instability to the construct validity of these tests. The theoretical base is hindered as well. Although Bar-On adequately describes the factors he is measuring, one is unclear as to whether his theory is one of emotional/social competence or emotional intelligence.

The Bar-On EQ-i:YV was normed on a sample of 9,172 children and adolescents (4625 males and 4547 females) who ranged in age from 7 to 18 years. The sample was ethnically diverse; however, Hispanics appeared to be over-represented in relation to census data (35% of normative sample), and African-Americans appeared to be under-represented (5 % of normative sample). Normative data was collected from "several different elementary, junior high, and high schools in the United States and Canada" (Bar-On & Parker, 2000). It should be noted that the authors were vague with respect to specific geographic region as well as rural versus urban settings. Furthermore, the socio-economic status of the normative sample was unreported in the technical manual. With respect to "educational ability", the authors noted that all respondents utilized in the normative sample attended regular education classes. That is, children in special education classes were excluded from this study.

Bar-On and Parker (2000) provide some evidence for the reliability and validity of the EQ-i: YV in the technical manual. Internal consistency was measured using Cronbach's alpha with values ranging from .65 to .90 on the Long Form and .65 to .87 on the Short Form. The Test-Retest reliability coefficients ranged from .77 to .89 on the Long Form and .77 to .87 on the Short Form. The interval between the initial test and subsequent test administration was three weeks. Based on the evidence provided, this instrument appears to be a reliable test.

Evidence of construct validity is presented by Bar-On and Parker (2000) in the EQ-i:YV technical manual. First, Bar-On and Parker discuss the factor structure of this instrument. A principal components analysis with a varimax rotation (N = 9172) was applied to the 40 items making up the Intrapersonal, Interpersonal, Stress Management, and Adaptability scales. The analysis yielded four factors that closely matched the four Bar-On scales developed to measure emotional intelligence. All 40 items loaded at least moderately (loadings factor 1: .42 to .71; factor 2: .42 to .77; factor 3: .43 to .64; factor 4: .43 to .77) on their matching factor and have very low loadings on the other three factors.

In regards to the intercorrelation among the EQ-i: YV scales, Bar-On and Parker report that all scales on both the Long and Short Forms of the EQ-I:YV are significantly intercorrelated at the .05 level. Furthermore, the authors cite evidence of the high degree of correlation between the Long and Short Forms. Coefficients for congruent scales (i.e. same scale on both forms) were quite high ranging from 1.00 to .92. Additionally, Bar-On and Parker (2000) report that the moderate correlation between the General Mood Scale and Total EQ scale is consistent with the view that general mood is an "important motivational and facilitating factor relevant to emotional intelligence" (p. 49).

Construct validity was further addressed by supplying evidence of convergent and discriminant validity. First, the authors report moderate to high correlations between the EQ-i:YV and the EQ-i (adult version). Such correlations range from .56 for the Interpersonal Scale to .88 for the General Mood Scale. Second, the relationship between the EQ-i:YV and other measures of personality was evaluated. The Intrapersonal scale was found to correlate significantly (albeit low correlations) with the Extraversion and Agreeableness scales on the NEO-Five Factor Inventory (Costa & McCrae, 1992). The Interpersonal scale correlated moderately with the Extraversion, Agreeableness, and

Conscientiousness scale. The Adaptability scale demonstrated a low but significant correlation with the Neuroticism scale of the NEO-FFI. The authors report that the correlations between these two measures “converged and diverged in a theoretically meaningful way” (Bar-On & Parker, 2000, p.50). However, Bar-On and Parker do not adequately explain this statement to the reader. As such, based on the evidence provided by Bar-On and Parker, the convergent and discriminant validity of the EQ-i:YV is equivocal at best. Further research into the relationship between the EQ-i: YV and measures of personality should be explored.

The authors report that subscales of the EQ-i:YV correlate significantly in the expected direction with measures of internalizing and externalizing behavior problems. For example, a moderate negative association ($r = -.30$) was found between the Interpersonal scale of the EQ-i:YV and the emotional problems scale of the Conners-Wells Adolescent Self-Report scale (CASS; Conners, 1997). Bar-On and Parker (2000) purport that this provides evidence for the theoretical assumption that individuals scoring high on the Intrapersonal scale generally understand their own feelings.

Based on the evidence provided by Bar-On and Parker (2000), the Bar-On Emotional Quotient Inventory: Youth Version appears to possess adequate properties of reliability. However, further validity studies should be conducted to provide evidence for construct validity, while at the same time exploring convergent and/or discriminant validity. It should be noted that convergent validity may be difficult to address due to the lack of measures of emotional intelligence for children and adolescents. Although the authors provide some evidence for discriminant validity in the technical manual, more evidence is needed. For example, studies comparing this instrument to traditional measures of intelligence should be conducted to determine if this measure accounts for any of the previous unexplained variance not accounted for by traditional intelligence measures. Since this instrument is self-report in format and because it has demonstrated some degree of correlation with a measure of personality, the relationship between the EQ-i:YV and personality should be further explored. This type of research would be beneficial in determining the degree to which these measures are assessing the same underlying constructs. Previous research has documented high correlations between self-report measures of emotional intelligence and measures of personality in adults (Davies

et al, 1998). More research is needed to determine whether the same relationship holds true for child populations.

Applications of Emotional Intelligence

Multiple Intelligence theory has long supported nurturing the full spectrum of one's intellectual abilities in the educational setting, particularly in the education of children. Currently, many educational programs focus on achievement related success in traditional areas such as reading, mathematics, and language. However, proponents of multiple intelligence theories support the inclusion of other domains such as musical intelligence, bodily-kinesthetic intelligence, and intrapersonal and interpersonal intelligences, which is of particular concern to emotional intellectual abilities.

Haggerty (1995) proposes six general principles for including non-traditional intelligences in school curriculum. These are (1) addressing the entire range of intellectual abilities, (2) individualizing each child's educational experience so as to match the unique combination of intelligences possessed by each student, (3) encouragement of students to establish their own learning goals, (4) matching the instructional conditions to the specific domain in which the student is called upon to exercise their ability (learning in context), (5) assessing intelligences directly in the context in which they are applied, and (6) a lack of confinement of educational experiences to the school building. Theoretically, such principles should be included in school curricula since it has been shown that students often have different learning styles (Sarasin, 1999). Such a plan would enable each student to capitalize on their individual strengths as well as bolster their weaknesses. However, the effectiveness and the practicality of such programs have yet to be determined.

As stated previously, Gardner's concepts of interpersonal/intrapersonal intelligences have been considered by Mayer & Salovey (1990) to be an important part of the emotional intelligence construct. Intrapersonal intelligence is important to the concept of emotional intelligence because it allows one to develop self-understanding and to master one's personal life (Haggerty, 1995). Such abilities closely mirror the first level of Mayer's and Salovey's theory of emotional intelligence (1997), the ability to perceive and appraise one's own emotions.

Interpersonal intelligence, on the other hand, allows us to forge friendships, master social roles, and transmit our values and knowledge effectively (Haggerty, 1995). The skills and abilities necessary for the development such intelligence, correspond to Mayer's and Salovey's (1997) highest level of emotional intellectual ability. With the development of this level, the individual is able to recognize emotion in others as well as manage emotions in self and others. The development of such social skills as the ability to make friends and master social roles is important to the school setting because it concerns issues such as popularity, and possibly, satisfaction with the school experience. It is logical to assume that such social skills could lead to greater happiness in the school setting, enhanced feelings of self-acceptance, and decreased negative moods. In fact, Greenspan and Lewis (1999) found that children with strong self-awareness and reflective thinking skills were more likely to possess positive self-esteem, to demonstrate a capacity for moral judgment, and to do well in school and with their peers.

Several programs have been developed to incorporate the construct of emotional intelligence in the classroom. One such program is the Child Development Program, which is based in Oakland California and is designed to concentrate on children's social, ethical, and intellectual learning simultaneously. This program attempts to blend lessons on feelings and relationships with other subjects, such as reading, science, and social studies (Goleman, 1995). For example, children may read a story about friendship, which is followed by a discussion on friendship and the skills needed to be a good friend. Such a discussion could bring up topics like sharing feelings, being aware of other's needs, and self-consciousness. Salovey and Slyuter (1997) who purport that teaching emotional intelligence should be interwoven into the daily curriculum would support such an integrated program. Furthermore, Goleman (1996) advocates devising educational programs that involve integrating a variety of skills into the curricula as well. These skills include self-awareness techniques, personal decision making, empathy, communication, self-disclosure, self-acceptance, insight, and personal responsibility.

Goleman (1995) reports that the first opportunity for shaping the components of emotional intelligence begins in early childhood, even though these abilities can be continually shaped throughout the school years. He makes this point by citing a report from the National Center for Clinical Infant Programs (1992), which states that school

success is not predicted by a young child's factual knowledge or reading ability so much as by the child's emotional or social capacities. Such emotional and social capacities include being self-assured and interested, knowing what kind of behavior is expected and how to rein in the impulse to misbehave, being able to wait and follow instructions, the ability to turn to teachers for help, and expressing needs while getting along with others. The National Center for Clinical Infant Programs (1992; as cited by Goleman 1995), further makes the claim that almost all students who do poorly in school lack one or more of these social/emotional abilities. Goleman (1995) further asserts that a child's school readiness depends on the degree to which a child possesses the following seven key ingredients of "how" to learn: confidence, curiosity, intentionality (the desire to have an impact), self-control, relatedness (ability to engage others), capacity to communicate, and cooperativeness.

If we are to accept Goleman's claims that school success depends much more on a child's social/emotional capabilities than on traditional school readiness areas such as reading and language, then it is important to consider the role of emotional development in early childhood by educators and parents alike. Furthermore, if one's emotional intelligence continues to develop over the life span, as predicted by Mayer et al (2000a) and Goleman (1995), then addressing such development in educational and domestic settings is also warranted to ensure success. Although Goleman's claims of the overarching importance of social/emotional abilities has yet to be adequately substantiated, his claims are valid in the respect that children who repeatedly fail at educational and social tasks, develop low self-esteem and lack self-efficacy. With the development of such negative factors, children are more likely to fall further behind their peers, as well as become increasingly discouraged, resentful and disruptive, all of which are detrimental to both educational and social achievement.

Enhanced emotional intelligence may help alleviate negative factors such as discouragement and low self-esteem. For example, emotionally intelligent individuals should approach life tasks more adaptively, as the harnessing of one's emotions and moods has been theorized to enhance one's ability to solve problems effectively (Salovey & Mayer, 1990; Mayer, 1986) as well as to assist in the performance of complex intellectual tasks (Salovey & Mayer, 1990;Cantor et al, 1987; Alpert et al, 1960).

Flexible planning is one problem-solving strategy effected by emotion and mood swings. According to Salovey and Mayer (1990), mood swings may help people to consider a wider variety of options. With more options to choose from, individuals possess a variety plans for the future, which leaves them better prepared. In addition to flexible planning, enhanced creativity and motivating moods are other aspects of emotional intelligence that affect one's ability to effectively problem-solve (Mayer & Salovey, 1990). Flexible planning, creativity, and motivating moods are important abilities for children to possess, especially from an educational and career related standpoint. If individuals possess a wider variety of options due to enhanced creativity, flexibility, and motivation, they may be less likely to become discouraged when faced with either educational or career related set backs. Such a lack of discouragement should lead to increased self-esteem and hopefully improved educational performance.

In conclusion, many factors related to one's emotional intelligence could effect performance in school as well as the ability to relate to peers. Increased emotional intelligence should bolster one's capacities too effectively problem solve, and thus, adapt to difficult life situations. To develop or enhance emotional intelligence in educational settings, teachers should make an effort to integrate aspects of emotionality into everyday curricula with the development of programs that simultaneously focus on children's social, ethical, and intellectual abilities. With the development of such programs, increased flexibility, creativity, and mood enhanced motivation may occur in students, thus elevating their overall emotional intelligence. With the development of these skills, overall school performance and desirable socially related phenomena such as popularity may increase. However, these hypotheses and others like them can not be adequately addressed until valid and reliable measures of children's emotional intellectual abilities are developed.

CHAPTER III

METHODOLOGY

Introduction

This study is an investigation of the psychometric properties (i.e. validity) of the Emotional Quotient Inventory: Youth Version (Bar-On & Parker, 2000). Several variables that researchers have hypothesized as having significant relationships with emotional intelligence in adult populations were examined so that strength of relationship in child/adolescent populations may be fully investigated. Six variables were used to analyze emotional intelligence and its relationship to other well developed constructs such as cognitive intelligence, personality, and parent report of behavior, as described by the instruments used. This chapter is a description of the procedures that were used to collect and analyze the data for this study, including: specific hypotheses, population, sample, research design, variables, instrumentation, procedures, and data analysis.

Specific Hypotheses

This study incorporates five separate sets of hypotheses for the purpose of investigating associated relationships between cognitive intelligence, personality, and parent-report of behavior, respectively, with emotional intelligence. The fifth set of hypotheses investigates the relative contribution of the previously mentioned factors to the overall prediction of emotional intelligence. See Table 3.1 for a visual representation of the proposed directional relationships. Such conclusions concerning directional relationships were based on the underlying theoretical orientation of the Emotional Quotient Inventory: Youth Version.

Table 3.1**Proposed Directional Relationships**

	Intrapersonal	Interpersonal	Adaptability	Stress Mgmt	General Mood	Total EQ
BASC-SRP						
Anxiety	-	-	-	-	-	-
Attitude to School	-	-	-	-	-	-
Attitude to Teachers	-	-	-	-	-	-
Atypicality	-	-	-	-	-	-
Depression	-	-	-	-	-	-
Interpersonal Relations	+	+	+	+	+	+
Locus of Control	-	-	-	-	-	-
Relationship with Parents	+	+	+	+	+	+
Self-Esteem	+	+	+	+	+	+
Self-Reliance	+	+	+	+	+	+
Sensation Seeking	-	-	-	-	-	-
Sense of Inadequacy	-	-	-	-	-	-
Social Stress	-	-	-	-	-	-
Somatization	-	-	-	-	-	-
Clinical Maladjustment	-	-	-	-	-	-

Table 3.1—Continued

	Intrapersonal	Interpersonal	Adaptability	Stress Mgmt	General Mood	Total EQ
School Maladjustment	-	-	-	-	-	-
Personal Adjustment	+	+	+	+	+	+
Emotional Symptoms Index	-	-	-	-	-	-
CBCL						
Anxious/Depressed	-	-	-	-	-	-
Withdrawn/Depressed	-	-	-	-	-	-
Somatization	-	-	-	-	-	-
Thought Problems	-	-	-	-	-	-
Rule Breaking	-	-	-	-	-	-
Attention Problems	-	-	-	-	-	-
Aggressive Behavior	-	-	-	-	-	-
WECHSLER						
Full Scale IQ	+	+	+	+	+	+

“+” indicates a positive relationship between variables; “-” indicates a negative relationship between variables

Analysis I

The first hypothesis set sought to determine strength of relationship between aspects of emotional intelligence as measured by the Emotional Quotient Inventory: Youth Version and cognitive intelligence. Cognitive intelligence was operationally

defined as the Full Scale IQ score on the WISC-III (Wechsler, 1991). Emotional intelligence was operationally defined through the following scales from the EQ-i: YV: Intrapersonal, Interpersonal, Adaptability, Stress Management, General Mood, and Total EQ. For this analysis, the following alternative hypotheses were proposed:

1. There will be a positive relationship between Intrapersonal abilities and cognitive intelligence.
2. There will be a positive relationship between Interpersonal abilities and cognitive intelligence.
3. There will be a positive relationship between Adaptability and cognitive intelligence.
4. There will be a positive relationship between Stress Management and cognitive intelligence.
5. There will be a positive relationship between General Mood and cognitive intelligence.
6. There will be a positive relationship between Total EQ and cognitive intelligence.

Analysis II

The second set of hypotheses sought to investigate the relationship between emotional intelligence and self-report of personality. Self-report of personality was measured by the Behavior Assessment System for Children-Self Report of Personality (BASC-SRP; Reynolds & Kamphaus, 1992). The following scales from the BASC-SRP were utilized in this study: (1) Anxiety, (2) Attitude to School, (3) Attitude to Teachers, (4) Depression, (5) Interpersonal relations, (6) Locus of Control, (7) Relationship with Parents, (8) Self-Esteem, (9) Self-Reliance, (10) Sensation Seeking, (11) Sense of Inadequacy, (12) Social Stress, (13) Atypicality, and (14) Somatization. For this analysis, the following directional hypotheses were proposed:

1. There will be a negative relationship between anxiety and the scales of the EQ-i: YV.
2. There will be a negative relationship between attitude to school and the scales of the EQ-i: YV.

3. There will be a negative relationship between attitude to teachers and the scales of the EQ-i: YV.
4. There will be a negative relationship between depression and the scales of the EQ-i: YV.
5. There will be a positive relationship between interpersonal relations and the scales of the EQ-i: YV.
6. There will be a negative relationship between locus of control and the scales of the EQ-i: YV.
7. There will be a positive relationship between relationship with parents and the scales of the EQ-i: YV.
8. There will be a positive relationship between self-esteem and the scales of the EQ-i: YV.
9. There will be a positive relationship between self-reliance and the scales of the EQ-i: YV.
10. There will be a negative relationship between sensation seeking and the scales of the EQ-i: YV.
11. There will be a negative relationship between sense of inadequacy and the scales of the EQ-i: YV.
12. There will be a negative relationship between social stress and the scales of the EQ-i: YV.
13. There will be a negative relationship between atypicality and the scales of the EQ-i: YV.
14. There will be a negative relationship between somatization and the scales of the EQ-i: YV.

Analysis III

The third set of hypotheses were aimed at investigating the relationship between parent-report of behavior and emotional intelligence. Emotional intelligence was measured using the six subscales from the EQ-i: YV (Bar-On & Parker, 2001). Parent report of behavior was measured by the following subtests from the Child Behavior Checklist (Achenbach, 2001): Anxious/Depressed, Withdrawn/Depressed, Somatization,

Thought Problems, Rule Breaking, Attention Problems, and Aggressive Behavior. For this analysis, the following directional hypotheses were proposed:

1. There will be a negative relationship between the Anxious/Depressed scale and the scales of the EQ-i: YV.
2. There will be a negative relationship between the Withdrawn/Depressed scale and the scales of the EQ-i: YV.
3. There will be a negative relationship between the Somatization scale and the scales of the EQ-i: YV.
4. There will be a negative relationship between the Thought Problems scale and the scales of the EQ-i: YV.
5. There will be a negative relationship between the Rule Breaking scale and the scales of the EQ-i: YV.
6. There will be a negative relationship between the Attention Problems scale and the scales of the EQ-i: YV.
7. There will be a negative relationship between the Aggressive Behavior scale and the scales of the EQ-i: YV.

Analysis IV

The fourth analysis considered the predictive validity of the EQ-i:YV by investigating the relationship between emotional disturbance and overall emotional intelligence. The following alternative hypothesis was proposed:

1. Emotional intelligence (as measured by the six subtests of the EQ-i: YV) will predict significantly elevated scores on the Emotional Symptoms Index of the BASC-SRP.

Analysis V

The final analysis was conducted to discover the relative contribution of cognitive intelligence and personality to the overall prediction of emotional intelligence. For this analysis, the following alternative hypotheses were proposed:

1. Personality (as measured by the BASC-SRP) will account for the greatest amount of variance in emotional intelligence, controlling for all other variables.
2. Cognitive intelligence (as measured by FSIQ) will account for the least amount of variance in emotional intelligence, controlling for all other variables.

Population

The population of interest for this study included primary- and secondary-school children living in North West Florida who were between the ages of 8 and 18. Within this population, two sub-groups were of particular concern. First, a group of children who had not been referred for assessment of psychoeducational difficulties was sampled. The second group consisted of children who had been referred for psychoeducational assessment.

Sample

Subjects who participated in the study were primary- and secondary-school students who lived in or around North West Florida. Non-referred participants (e. g. not referred for psychoeducational assessment) were students attending the Liberty County School District. Referred participants (e. g. referred for psychoeducational assessment) consisted of students referred to the Florida State University Regional Multidisciplinary and Consulting Center. Power dictated a need for 91 subjects (medium effect size, power = .80, alpha = .05) and an attempt was made to get approximately equal numbers of students from each sub-group; volunteers were selected who met specific criteria (see below).

The sample was obtained from students who volunteered to participate in the study. For children in Liberty County, participation was solicited via flyers sent home from school for review by parents. For children being assessed at the Regional Multidisciplinary Center, participation was solicited by direct communication with parents via clinical staff. Each child who was referred to the Multidisciplinary Center for evaluation from March 2002 to April 2003 and who met eligibility criteria was informed of the study and given a chance to participate.

Specific criteria were set in order for a student to participate in the study. Student participating in the “non-referred” group met the following criteria: (1) was between the ages of 8 and 18 and (2) must NOT have ever been referred for psychoeducational testing. Participants in the “referred” group met the following criteria: (1) were between the ages of 8 and 18 and (2) must have been previously referred for psychoeducational assessment. The decision to use a volunteer nonprobability sample was made with the acknowledgment that the use of such a sample limits the generalizability of the study.

However, it was determined that in order to examine the associated relationships of emotional intelligence, such relationships would be best examined in a population willing to undergo the extensive test battery required for this study (i.e. intelligence testing, personality testing, emotional intelligence testing, and parent report of behavioral functioning). Many students referred for psychoeducational assessment undergo such an extensive battery, making the collection of data for a large sample size more feasible and obtainable.

According to Smith and Glass (1987), generalizations made from a nonprobability sample to its population must be made on the basis of a reasonable comparison of the sample with the population. In addition, Leong and Austin (1996) state that if the power attributed to the relationship between the variables is strong enough, it is reasonable to conclude that it will occur in the population regardless of how the subjects in the experiment are chosen.

For the purpose of this study, all statistical inferences based on observed results were limited to the sample obtained through the method described above. Given the exploratory nature of this study, it is believed that utilization of a criterion sample is justified for the purpose of furthering understanding of the concept of emotional intelligence.

Research Design

A correlational research design was utilized to investigate the relationships of cognitive intelligence, self-report of personality, and parent-report of behavior to emotional intelligence. A correlational research design allows for the simultaneous measurement of several variables and subsequent interrelationships in a realistic setting (Borg, 1987). According to Smith and Glass (1987), such an approach provides the researcher with information regarding not only the direction of the relationship between two variables, but also the magnitude of the relationship.

Additionally, a correlational research design is considered to be a useful and appropriate approach when the variables of interest are complex and not fully understood. For example, Borg (1987) states that correlational research is ideal when exploring a new area because “in doing so, the researcher can often identify and define the variables that appear to be most promising and study these in subsequent experimental studies” (p.

207). As discussed earlier, both the theoretical position and study of emotional intelligence are relatively new research areas.

Variables

The selection of the variables used in this study was based on a review of the literature and the hypothesized contributions of such variables to emotional intelligence as measured by the Emotional Quotient Inventory: Youth Version. The same set of continuous variables were used in the first three analyses as measures of emotional intelligence. These are the scales of the Emotional Quotient Inventory: Youth Version (EQ-i: YV; Bar-On & Parker, 2000), and are as follows:

1. *Intrapersonal abilities* (involves the ability of the person to understand their emotions as well as communicate and express feelings and needs)
2. *Interpersonal abilities* (measures one's ability to form and maintain satisfying relationships with others)
3. *Adaptability* (involves measuring one's own ability to manage)
4. *Stress Management* (includes one's ability to remain calm in the face of stressful events)
5. *General Mood* (measures optimism and positive outlook)
6. *Total EQ* (measures one's ability to effectively deal with daily demands while remaining happy or satisfied).

In addition, analyses I-III each included additional correlates. For analysis I, the correlate was the subject's Full Scale IQ score as measured by the WISC-III (Wechsler, 1991). When WISC-III scores were unavailable, a Full Scale IQ score was obtained via the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). Analysis II utilized 14 subtests from the BASC-SRP (Reynolds & Kamphaus, 1992) as correlates. The subtests are as follows: (1) Anxiety, (2) Attitude to School, (3) Attitude to Teachers, (4) Depression, (5) Interpersonal Relations, (6) Locus of Control, (7) Relationship with Parents, (8) Self-Esteem, (9) Self-Reliance, (10) Sensation Seeking, (11) Sense of Inadequacy, (12) Social Stress, (13) Atypicality, and (14) Somatization. Finally, for analysis III, the seven subtests of the Child Behavior Checklist (Achenbach, 2001) were used. These subtests were as follows: (1) Rule Breaking, (2) Attention Problems, (3)

Aggressive Behavior, (4) Anxious/Depressed, (5) Withdrawn/Depressed, (6) Somatization, and (7) Thought Problems.

For the fourth analysis, a discriminant analysis was performed using the Emotional Symptoms Index from the BASC-SRP (Reynolds & Kamphaus, 1992) as the criterion variable and the six subtests from the EQ-i: YV as the predictor variables. These subtests are as follows: Intrapersonal, Interpersonal, Stress Management, Adaptability, General Mood, and Positive Impression.

For the fifth analysis, Total EQ was used as the criterion variable. The predictor variables included the following: Step 1: Personal Adjustment Composite, as measured by Relationship with Parents, Self-Esteem, Self-Reliance, and Interpersonal Relations; Step 2: School Maladjustment Composite as measured by Attitude to School and Attitude to Teachers; Step 3: Clinical Maladjustment Composite as measured by Anxiety, Atypicality, Locus of Control, and Social Stress; Step 4: Other Problems as measured by Sense of Inadequacy and Depression; Step 5: Full Scale IQ.

Instrumentation

Five instruments were used in data collection. Procedures for instrumentation selection and development entailed a thorough review of the literature in choosing instruments that reflected the main ideas of this research. Specifically, instruments were selected based on their psychometric properties, coherency, normative information, availability, and ease of administration. The selected instruments were the Emotional Quotient Inventory: Youth Version (EQ-i: YV; Bar-On & Parker, 2000) Wechsler Intelligence Scale for Children--Third Edition (WISC-III; Wechsler, 1991), the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999), the Behavior Assessment System for Children: Self-Report of Personality (BASC-SRP; Reynolds & Kamphaus, 1992), and the Child Behavior Checklist (CBCL; Achenbach, 2001). In addition, a brief self-designed demographic questionnaire was used in order to gather relevant background information for the purpose of providing a statistical description summary of the sample of participants utilized in this study. In this section, relevant descriptive information and psychometric properties will be presented.

Emotional Quotient Inventory: Youth Version

The Bar-On Emotional Quotient Inventory: Youth Version (Bar-On & Parker, 2000) is a 60 item self-report instrument designed to measure emotional intelligence in young people age seven to eighteen years. It consists of the following seven scales: intrapersonal, interpersonal, adaptability, stress management, general mood, positive impression, Total EQ, and the inconsistency index. According to Pfeiffer (2001), the inventory is geared to a fourth grade reading level and takes about 25 minutes to complete. Raw scores are converted to standard scores with a mean of 100 and a standard deviation of 15. The instrument uses a 4-point Likert style format (very seldom true of me, seldom true, often true, and very true) and summons self-appraisals about having fun, ease at telling others how you feel or talking about deep feelings, the importance of friends, and knowledge about how other people are feeling. The reader is directed to chapter 2 of this paper for an in-depth discussion and analysis of this instrument.

Wechsler Intelligence Scale for Children—Third Edition

The Wechsler Intelligence Scale for Children—Third Edition (WISC-III; Wechsler, 1991) is an individually administered clinical instrument for assessing the intellectual ability of children aged 6 years through 16 years, 11 months. It yields Full Scale, Verbal Scale, and Performance Scale IQ scores in addition to four factor based index scores. Administration of the regular battery of 10 subtests requires approximately 50-70 minutes. Individual variations in children's test-taking styles and in examiner's administration techniques may result in longer or shorter testing times.

The WISC-III is comprised of 13 subtests, which are organized into two groups: the Verbal subtests and the perceptual-motor, or Performance subtests. The child's performance on these subtests yields three composite scores. The sum of the scaled scores on the Verbal subtests yields the Verbal IQ score, and the sum of the scaled scores on the Performance subtests yields the Performance IQ score. The scores on the Verbal and Performance subtests combine to yield the Full Scale IQ score.

In constructing WISC-III, children aged 6 to 16 were sampled from selected sites across the United States. Approximately 75 testing sites were selected based on geographic region, socioeconomic status, and culture/ethnicity. The standardization sample consisted of 2200 cases and included 200 children in each of the 11 age groups

ranging from 6 through 16 years. With respect to gender, the sample included 100 males and 100 females in each age group. For each age group in the standardization sample, the proportions of Whites, Blacks, Hispanics, and other race/ethnic groups were based on the race/ethnic group proportions of children aged 6-16 in the U. S. population according to the 1988 Census survey. In the standardization sample, 15.4 % were African-Americans, 11% were Hispanic, 70.1% were White, and 3.5% were classified as “other”.

Based on evidence provided in the technical manual, the WISC-III appears to be a highly reliable instrument. Several types of reliability statistics were provided to support this assumption. First, average reliability coefficients for the three scales (based on the split-half method) are as follows: VIQ = .95, PIQ = .91, FSIQ = .96. Second, relatively small standard errors of measurement (SEM) are evidenced by the WISC-III. For example, the average SEM for the Full Scale IQ is only 3.20. Third, average stability coefficients range from a low of .87 for the Performance scale to a high of .94 for the Full scale (Verbal scale = .94 as well). Finally, interscorer agreement on all subtests excluding Similarities, Vocabulary, and Comprehension averaged in the high .90s.

In addition to demonstrating a high degree of reliability, the WISC-III seems to provide a highly valid measure of cognitive intelligence. According to the technical manual (Wechsler, 1991), the WISC-III's predecessor, the WISC-R, is one of the most widely researched psychological tests and one of the most extensively cited tests in the professional literature. Such a plethora of research provides a large amount of validity evidence for the Wechsler tests. For example, decades worth of research studies have provided evidence for the presence of a global ability (“g”), verbal and performance factors, and a third factor, freedom from distractibility. Extensive criterion-related evidence has been provided as well. Concurrent validity studies investigating the relationship of FSIQ score to composite scores from instruments such as the WPPSI-R, WAIS-R, and SB-IV have yielded high correlation coefficients (.85, .88, and .83, respectively). With respect to predictive validity, high correlations with the WPPSI and WAIS-R have been noted as well (.94 and .84, respectively).

Wechsler Abbreviated Scale of Intelligence

The Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999) is a brief and reliable measure of intelligence that was developed for use in clinical,

psychoeducational, and research settings (Wechsler, 1999). The WASI is individually administered and is designed for use with individuals aged 6 to 89 years. It was nationally standardized and yields Verbal, Performance, and Full Scale IQ scores. The WASI consists of four subtests, which include Vocabulary, Block Design, Similarities, and Matrix Reasoning. Administration of all four subtests yields an estimate of verbal, non-verbal, and general cognitive functioning (FSIQ-4). General cognitive functioning may be estimated by administering two subtests, Vocabulary and Matrix Reasoning (FSIQ-2). Administration time is approximately 15 to 30 minutes.

The WASI was normed on a national standardization sample composed of an English speaking U. S. population aged 6 to 89 years. The sample was stratified on sex, race/ethnicity, and educational level parameters according to 1997 census data and included 2,245 children and adults. Sampling sites were located across the United States with each geographic region adequately represented. The standardization sample was divided into 23 age groups, with equal numbers of male and female participants in each age group from 6 through 74. In the three oldest age groups (ages 75 to 89), women outnumbered men in proportions consistent with census data.

The WASI has evidenced excellent psychometric properties. Since the sample being used in the current study focuses on children and adolescents, only reliability and validity evidence for these age groups will be discussed. With regards to reliability, average coefficients (reliability) for the children's sample (ages 6-16) range from .87 to .92 for the subtests. Coefficients for the Verbal IQ, Performance IQ, and Full Scale IQ-4 are .93, .94, and .96 respectively. The average reliability coefficient for the Full Scale IQ-2 is .93. Standard errors of measurement (SEMs) range from 2.94 to 3.63 for the subtests. The FSIQ-4 and FSIQ-2 have SEMs of 3.08 and 3.85, respectively. Stability scores of the WASI were assessed by the test-retest method with a mean retest interval of 31 days. The average stability coefficients range from .77 to .86 for the subtests and from .88 to .93 for the IQ scales. The average stability coefficient for the FSIQ-2 is .85.

Several types of validity evidence are addressed by the WASI. In an attempt to demonstrate content validity, the WASI was correlated with the WISC-III. Correlation coefficients for the VIQ, PIQ, and FSIQ-4 are .82, .76, and .87, respectively. The correlation coefficient between the WISC-III FSIQ and the WASI FSIQ-2 was .81. Both

exploratory and confirmatory factor analyses were performed to evaluate whether the WASI subtests measure the constructs of verbal and non-verbal abilities. The factor solutions were evaluated in light of the research literature, statistical criteria, and the model of intelligence presented in the WISC-III and the WAIS-III. The results of the exploratory analysis support a factor pattern separating the verbal from the nonverbal subtests. The WASI Vocabulary and Similarities subtests load on the Verbal Comprehension Factor while the Block Design and Matrix Reasoning load heavily on the Perceptual Organization Factor. For the confirmatory factor analysis, a two-factor model was compared to a general, one-factor model. The two-factor model demonstrated significant improvement over the one-factor model with a X^2 of 4.8 and an Adjusted Goodness of Fit Index (AGFI) of .989.

Behavior Assessment System for Children: Self-Report of Personality (BASC-SRP)

The BASC is a multimethod, multidimensional approach to evaluating the behavior and self-perceptions of children aged 4 to 18. It measures numerous aspects of behavior and personality, including positive (adaptive) as well as negative (clinical) dimensions. The BASC was designed to facilitate the differential diagnosis and educational classification of a variety of emotional and behavioral disorders of children, and to aid in the design of treatment plans (Reynolds & Kamphaus, 1992).

The Self-Report of Personality is an omnibus personality inventory consisting of statements that are responded to as “true” or “false” and takes approximately 30 minutes to complete. This instrument has 2 forms at 2 age levels: child (8-11) and adolescent (12-18). Both levels have identical Composite scores: School Maladjustment, Clinical Maladjustment, Personal Adjustment, and an overall composite score, the Emotional Symptoms Index. Special indexes are incorporated to assess the validity of the child’s responses: the F index, the L index (fake good) (for SRP-A only) and the V index, which is designed to detect invalid responses due to poor reading comprehension, failure to follow directions, and/or poor contact with reality. A description of each of the composite scores, subscales, and indices are as follows:

Composite Scores

Clinical Maladjustment - A broad index of distress that reflects the clinical, internalizing problems a child may be experiencing.

School Maladjustment - A broad measure adaptation to school.

Personal Adjustment - High scores on this composite indicate positive levels of adjustment. At-risk scores suggest problems with interpersonal relationships, self-acceptance, identity development, and ego strength.

Emotional Symptoms Index - Global indicator of serious emotional disturbance, particularly internalized disorders.

Subscales

Anxiety – Feelings of nervousness, worry, and fear; the tendency to be overwhelmed by problems.

Attitude to School – Feelings of alienation, hostility, and dissatisfaction regarding school.

Attitude to Teachers – Feelings of resentment and dislike of teachers; beliefs that teachers are unfair, uncaring, or overly demanding.

Atypicality – The tendency toward gross mood swings, bizarre thoughts, subjective experiences, or obsessive-compulsive thoughts and behaviors often considered “odd”.

Depression – Feelings of unhappiness, sadness, and dejection; a belief that nothing goes right.

Interpersonal Relations – The perception of having good social relationships and friendships with peers.

Locus of Control – The beliefs that rewards and punishments are controlled by external events or other people.

Relations with Parents – A positive regard towards parents and a feeling of being esteemed by them.

Self-Esteem – Feelings of self-esteem, self-respect, and self-acceptance.

Self-Reliance – Confidence in one’s ability to solve problems; a belief in one’s personal dependability and decisiveness.

Sensation Seeking – The tendency to take risks, to like noise, and to seek excitement.

Sense of Inadequacy – Perceptions of being unsuccessful in school, unable to achieve one’s goals, and generally inadequate.

Social Stress – Feelings of stress and tension in personal relationships; a feeling of being excluded from social activities.

Somatization – The tendency to be overly sensitive to, experience, or complain about relatively minor physical problems and discomforts.

Indices

F Index - Infrequency index; “fake bad”

L Index - Social desirability index; “fake good”

V Index - designed to detect invalid responses due to poor reading comprehension, failure to follow directions, and/or poor contact with reality.

In constructing the BASC-SRP, children aged 8 to 18 were sampled from selected sites from around the United States. A total of 116 testing sites were selected based on geographic region, socioeconomic status, and culture/ethnicity. In the general normative sample for ages 8-11, both females (N = 2728) and males (N = 2685) were evenly represented. The sample of adolescents (ages 12-18) consisted of 2,393 females (54 %) and 2,055 males (46%). In regards to race/ethnicity, for the SRP 8-11, 9% of the sample consisted of African-Americans, 12% were Hispanic, 74% were White, and 6% were classified as “other”. For the SRP 12-18, the sample consisted of 16% African American, 8% Hispanic, 73% White, and 4% “other”.

Two types of reliability evidence were provided in the technical manual, internal consistency and test-retest reliability. First, the internal consistencies for the scales were high, averaging about .8 for each gender at both age levels--child (range .71 to .88) and adolescent (range .58 to .89). No noteworthy differences in reliability existed between males and females. The composite score reliabilities are also very high, ranging from the mid-.80s to the mid-.90s. Second, evidence for stability (test-retest reliability) was adequate, with a median value for the scales being .76 at each age level. Retest correlations for the composites are generally in the low to middle .80s, with the exception of Personal Adjustment ($r = .78$). Long-term stability was also reported in the technical manual. After a period of seven months, the SRP-C (child) was readministered to 44

children from one school district that were classified as behaviorally or emotionally disturbed. The median scale correlation was .51. Correlations were highest for the Clinical Maladjustment composite ($r = .69$) and lowest for the Personal Adjustment composite ($r = .38$).

With regard to validity, several types of evidence are provided by Kamphaus and Reynolds (1992). First, factor analyses were performed to determine the structure of the composite scores for each level of the SRP. Both the initial principal components analysis and follow-up covariance structure analysis yielded a three-factor solution. For the principal components analysis, factor loadings ranged from .49 to .78 on the SRP-A and .58 to .80 on the SRP-C. Similar factor loadings were observed for the final model.

Content and construct validity were assessed by employing the expert judgment technique. Fourteen licensed clinical psychologists were asked to sort the entire set of SRP-A items into discrete categories representing various forms of adolescent psychopathology. The clinician's sortings were partitioned into a proportion matrix, which was factor analyzed and yielded eight expert scales. These eight scales were analyzed according to two criteria: ability to add new, nonredundant information and ability to differentiate among clinical and nonclinical samples. The correlations of each new scale with the SRP-A scales ranged from .71 to .96.

In a third attempt to provide validity evidence, Reynolds and Kamphaus (1992), correlated the BASC-SRP with four other instruments measuring similar constructs. These instruments included the MMPI (Hathaway & McKinley, 1942, 1943, [renewed 1970]), Youth Self Report (Achenbach, 1985), Behavior Rating Profile (Brown & Hammill, 1983), and the Children's Personality Questionnaire (Porter & Cattell, 1975). The first three of these instruments, which focus on assessing problems, show a number of high correlations with the SRP scales. However, the CPQ, which focuses on normal-range personality, correlates at a lower level with the SRP.

In sum, the BASC-SRP is both a highly reliable and valid measure of behavior and personality in children and adolescents. It was selected for use in the present study based on its sound psychometric properties, theoretical base, and ease of administration. Given that one of the primary aims of the present study was to test the relationship

between personality and emotional intelligence as measured by the EQ-i: YV, a quality “omnibus” measure of personality such as the BASC-SRP was required.

Child Behavior Checklist

The Child Behavior Checklist for 4-18 year olds (CBCL; Achenbach, 2001) is a commonly used measure of childhood behavior problems and is often used as a standardized measure of a child’s behavior at home. The CBCL contains 118 behavior problem items that describe a specific behavior or belief of the child. On a scale from 0 (not true) to 2 (very true or often true), the parent rates the extent to which each item is indicative of the child’s behavior in the last six months. The items on the CBCL result in eight factor-analytically derived subscales, which include the following:

Withdrawn/Depressed, Somatization, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Rule Breaking, and Aggressive Behavior. Sattler (1993) reports that both the CBCL and the TRF are well standardized and have adequate reliability and validity.

In order to assess the reliability of the CBCL item scores, authors computed the intraclass correlation coefficient (ICC) from a one-way ANOVA. The ICC reflects the proportion of total variance in item scores that is associated with differences between the items themselves, after the variance due to a specific source of unreliability has been subtracted. Test-retest reliabilities were computed from CBCL’s obtained by a single interviewer who visited mothers of 72 non-referred children at a 1-week interval. The overall ICC was found to be 1.00 for the 20 competence items and .95 for the 118 specific problem items (both $p < .001$). In regards to internal consistency, the alphas for the competence scales were moderately high, ranging from .63 to .79. For the empirically based problem scales, the alphas ranged from .78 to .97. The CBCL has also shown to be stable over time as the mean r ’s for the problem scales over 12 and 24-month periods, respectively were found to be .74 and .70. It should be noted that only the problem scales were utilized in this study.

In regards to the validity of the CBCL, Achenbach and Rescorla (2001) provide several types of evidence. First, content validity was supported by decades of research (beginning with original CBCL in the 1960’s), consultation, feedback and revision, and statistical findings that indicate significant discrimination ($p < .01$) between

demographically matched referred and non-referred children. Second, criterion-related validity of the CBCL has been supported by various statistical analyses including multiple regression, odd ratios, and discriminant analyses, all of which showed significant discrimination ($p < .01$) between referred and non-referred children. Finally, construct validity has been supported through evidence of significant associations with analogous scales of other instruments (i.e. Conners, BASC) and with DSM criteria.

Procedures

Data collection for this study occurred during a thirteen-month period from March 2002 to April 2003. Subjects were obtained from both Liberty County School District and the Regional Multidisciplinary and Consulting Center. In Liberty County, students received a flyer to be brought home to parents soliciting participation in a study examining the characteristics associated with emotional intelligence. The flyer addressed those students who had not been referred for psychoeducational testing as well as those students who did not receive Exceptional Student Education services. At the Multidisciplinary Center, each child who was referred (to the Center) during the 13 month period and who met the requirements of the study was given an opportunity to participate in the study.

Potential subjects in Liberty County who were interested in participating in the study were asked to return their flyer to the school they attended during a two-week period prior to the beginning of data collection. Each flyer had a section for the parent to fill out their child's name and other identifying data. At the end of the two-week period, the researcher collected the flyers from each school. Due to the limited number of students who volunteered to participate in the study, each child who returned a flyer indicating interest in volunteering was selected for the study. A packet containing an informed consent letter and a Child Behavior Checklist (Achenbach, 2001) was sent home with each participant for the parent to fill out and return to school. After verification of consent, each participant was seen individually at their school by this researcher and administered a WASI (Wechsler, 1999), BASC-SRP (Reynolds & Kamphaus, 1992), and EQ-i: YV. The primary researcher scored the battery of tests as well as compiled all results.

Participants from the Multidisciplinary Center were those referred for

psychoeducational assessment. As part of the Center's evaluation, each child is generally given a battery of assessment instruments, which includes an estimate of intellectual functioning (e.g. IQ). Personnel working at the Center administered the intelligence test as well as the other tests utilized in this study. Such personnel consisted of doctoral level psychologists, licensed school psychologists (typically holding Educational Specialist degrees), and graduate students. All graduate students had completed courses in test administration and were provided with supervision from psychologists employed by the Center.

Children referred to the Multidisciplinary Center who were between 8 and 18 years old were asked to participate in this study. The participant's parent was asked by Center personnel to allow their child to participate in the study and a brief standardized description of the study was provided. Once verbal consent was obtained, a written consent form was provided for the parent to sign. Additionally, each participant was asked to give their assent to participate. After consent/assent had been verified, the parent was given a Child Behavior Checklist (Achenbach, 2001) to complete, while the child (participant) was administered the EQ-i: YV and BASC-SRP. Full Scale IQ score was determined from the intelligence test administered as part of the Center's standard battery.

After the battery of tests required for this study were administered by Center personnel, they were placed in a filing cabinet at the Center to be picked up by the primary researcher at a later date. Once retrieved, the primary researcher scored all of the assessment instruments (excluding intelligence test) and compiled the results.

After collecting data for approximately nine months, it was determined that the number of subjects needed from the Multidisciplinary Center to achieve adequate statistical power could not be obtained in a reasonable time frame. This was due largely to the unwillingness of the Center's clients to participate in the study. It is hypothesized that this unwillingness to volunteer for the study was due to fatigue with the test setting.

As a result of the lack of volunteers from the Regional Multidisciplinary Center, a sample of students was obtained from the Florida State University School (FSUS). This sample of students consisted of those who had been previously referred to the Multidisciplinary Center for testing during the previous five years (1999-2003). A list of

the names of these students was obtained from the Multidisciplinary Center, and those who were still attending FSUS during the spring semester of 2003 were solicited to volunteer for the study. An informational flyer was sent home for review by the parent (the same flyer sent home with children in the Liberty County School District). All students who returned their flyers were given a packet to take home to their parents, which included an informed consent letter, a demographic questionnaire, and a Child Behavior Checklist. Once this packet was returned to school, the students were administered a WASI (Wechsler, 1999), a BASC-SRP (Reynolds & Kamphaus, 1992), and an EQ-i: YV (Bar-On & Parker, 2000) by graduate students. The graduate students were trained in administration procedures and supervised by the lead researcher of this study. The same guidelines for test administration that were outlined for use at the Multidisciplinary Center were utilized at FSUS.

Confidentiality was maintained throughout this study. During compilation of results, each participant was issued an identification number so that observations such as demographic information and individual responses could be logged and tracked for statistical purposes. File folders containing consent forms and test protocols were kept in the researcher's home out of the public view and under the control of the primary researcher.

Participation in this study was standardized using identical instructions, which were provided to all subjects. These instructions included the directions provided by each of the assessment instruments utilized in the study and were read to the participants verbatim. To ensure standardization of procedures, all those who collected the data required for this study were given an in-service including training on each of the assessment instruments and review of the procedures outlined in this paper.

Subjects were informed that they would be allowed to ask any questions or voice any concerns that might arise during their participation in the study or in the future. Each subject and their guardian was provided with the name, phone number, and e-mail address of the primary researcher should they need to contact her with any concerns.

Each subject's guardian was asked if they wished to receive an abstract summary of the research study, including overall findings. Only group data will be reported in the abstract in order to maintain the confidentiality of the individual participants. Subjects

requesting this information were asked to include a notice of their request on a separate piece of paper with the return of their informed consent statement. Subjects were asked to include their name and address on the request so that the abstract and findings may be forwarded. Requests for summary abstracts and findings will be provided within 60 days of the completion of this study.

Data Analysis

All statistical analyses were computed using the Statistical Package for the Social Sciences (SPSS). Due to the exploratory nature of this investigation, determination of sample size will be based on the following suggestions made by Cohen (1977, 1992) for generating sufficient power to investigate medium sized relationships between variables in a correlational analysis: alpha level of .05, effect size equal to .15, and a power value of .80. Based on these parameters, a total of 91 subjects was required to generate enough power to sufficiently investigate the all of the desired relationships as well as employ the various statistical procedures utilized in this study. For analyses I – IV, only 85 subjects were required to investigate the desired relationships (Sig. r ; medium effect, power = .80, alpha = .05). However, to investigate variables utilizing the Multiple R , a sample of 91 subjects was required. Sufficient power was generated in this study as a total of 143 subjects were obtained.

According to Cohen (1977), when the investigator has no other basis for setting the desired power value, as is the case in the present study, the value .80 should be utilized. The effect size was set at .15. Although the effect size of .15 is an arbitrary value, Cohen (1977) offers the following explanation for its selection. Since the alpha level is set at .05, the effect size of .15 is chosen with the idea that the general relative seriousness of these two kinds of errors is .15/.05. That is, Type I errors are assumed to be three times as serious as Type II errors.

Identical statistical procedures were conducted for analyses I, II, and III. The following statistical procedures were employed:

- (1) Descriptive statistics were provided for the purpose of showing the variation in estimated means and standard deviations for each dependent and independent variable across the sample.
- (2) Bivariate correlations between each independent and dependent variable were

calculated to determine both strength of association and directional relationship. The alpha level for significance was set at the .001 level to control for family-wise error rate due to the large number of correlates utilized in this study.

For analysis IV the following statistical procedures were employed:

- (1) Descriptive statistics were provided for the purpose of showing the variation in estimated means and standard deviations for the dependent variable and each independent variable across the sample.
- (2) A Discriminant Analysis was performed using the Emotional Symptoms Index from the BASC-SRP (Reynolds & Kamphaus, 1992) as the criterion variable and the six subtests from the EQ-i: YV (Bar-On & Parker, 2000) as predictor variables.

Statistical procedures for analysis V were as follows:

- (1) Descriptive statistics were provided for the purpose of showing the variation in estimated means and standard deviations for each dependent and independent variable across the sample.
- (2) A hierarchical multiple regression analysis was conducted to estimate the unique effects of the IV's on the outcome variable (e.g. DV, Total EQ). In conducting the hierarchical multiple regression analysis, the following steps were utilized:
 - I. Assess the overall relationship: Estimate and test the model R^2 for each step and determine the adjusted R^2 .
 - II. Describe the unique effect of each independent variable (IV):
 - A. Use the estimated regression coefficient to describe the effect.
 - B. Use the unique contribution of the R^2 (ΔR^2) to describe the effect.

Analysis I: Hypotheses 1-6

The first six hypotheses pertain to the strength of relationship between emotional intelligence and cognitive intelligence. The correlational variables included intrapersonal abilities, interpersonal abilities, adaptability, stress management, general mood, total EQ,

and Full Scale IQ score. In order to investigate the unique relationship of each variable to the construct of cognitive intelligence, a series of bivariate correlations were obtained.

Analysis II: Hypotheses 1-14

The second set of hypotheses sought to understand the relationships between emotional intelligence and self-report of personality. Variables in this analysis included intrapersonal abilities, interpersonal abilities, adaptability, stress management, general mood, total EQ, and the following scales from the BASC-SRP: anxiety, attitude to school, attitude to teachers, depression, interpersonal relations, locus of control, relationship with parents, self-esteem, self-reliance, sensation seeking, sense of inadequacy, social stress, atypicality, and somatization. A set of bivariate correlations was obtained to better understand the unique relationships between the construct of emotional intelligence and an omnibus measure of personality in children/adolescents.

Analysis III: Hypotheses 1-7

The hypotheses for analysis three sought to investigate the relationship between emotional intelligence and parent-report of behavior in children/adolescents. Variables measuring emotional intelligence consisted of the same set as used in analyses I and II. Other correlates included anxious/depressed, withdrawn/depressed, somatization, atypicality, rule breaking, attention problems, and aggressive behavior (as measured by the CBCL). A set of bivariate correlations was obtained to more accurately perceive the unique relationship between the construct of emotional intelligence and parent-report of behavior problems.

Analysis IV: Hypothesis 1

Analysis four sought to understand the relationship between social-emotional problems and overall emotional intelligence. A discriminant analysis was performed to estimate the degree to which Total EQ (predictor variable) could discriminate among children evidencing significantly elevated scores versus those who do not on a measure of personality (Emotional Symptoms Index of the BASC-SRP; criterion variable).

Analysis V: Hypotheses 1-2

The final hypothesis set was aimed at investigating the unique contribution of both cognitive intelligence (as measured by FSIQ) and self-report of personality (as measured by the BASC-SRP) to the overall prediction of emotional intelligence (as

measured by the EQ-i: YV). The specific independent variables for this analysis will be as follows: Step 1: Personal Adjustment Composite, as measured by Relationship with Parents, Self-Esteem, Self-Reliance, and Interpersonal Relations; Step 2: School Maladjustment Composite as measured by Attitude to School and Attitude to Teachers; Step 3: Clinical Maladjustment Composite as measured by Anxiety, Atypicality, Locus of Control, and Social Stress; Step 4: Other Problems as measured by Sense of Inadequacy and Depression; Step 5: Full Scale IQ. The intention of using the hierarchical multiple regression analysis in this case was so that the IV's or predictor variables could be entered into the equation in an order specified by the researcher. This order was determined based on a theoretical a-priori determination of the relationships among the constructs. Each IV was assessed in terms of what it added to the equation at its own point of entry. A sequential (hierarchical) multiple regression is useful when a study has a large number of variables representing a smaller number of constructs. This technique allows the researcher to evaluate the constructs by entering the IV's in blocks, thus maintaining smaller degrees of freedom and reducing the error rate. (Tabachnick & Fidell, 1996). An adjusted coefficient of determination (R^2_{adj}), was utilized to control for the positive bias inherent in the coefficient of determination (R^2). After it was determined that a significant overall relationship existed, the unique effect of each independent variable was described.

CHAPTER IV

RESULTS

Introduction

To investigate the psychometric properties (i. e. validity) of the Emotional Quotient Inventory: Youth Version (EQ-i: YV; Bar-On & Parker, 2000), the data were analyzed using a series of correlational analyses, a discriminant analysis, and a hierarchal multiple regression analysis. Five separate sets of analyses were conducted for the purpose of investigating the associated relationships between cognitive intelligence, personality, parent-report of behavior, and referral for assessment of psychosocial/learning difficulties, respectively, with emotional intelligence.

The first set of analyses was conducted to determine the strength of relationship between aspects of emotional intelligence as measured by the Emotional Quotient Inventory: Youth Version and cognitive intelligence. Cognitive intelligence was operationally defined as the Full Scale IQ score on the WISC-III (Wechsler, 1991) or WASI (Wechsler, 1999). Emotional Intelligence was operationally defined through the following scales from the EQ-i: YV (Bar-On & Parker, 2000): Intrapersonal, Interpersonal, Adaptability, Stress Management, General Mood, Positive Impression, and Total EQ (Composite Score).

The second set of analyses was conducted to determine strength of relationship between self-report of personality and emotional intelligence. Self-report of personality was defined through the following 14 scales from the Behavior Assessment System for Children-Self Report of Personality (BASC-SRP; Reynolds & Kamphaus, 1992): five scales composing the Clinical Maladjustment Composite- Anxiety, Atypicality, Locus of Control, Social Stress, and Somatization (adolescent form only); three scales composing the School Maladjustment Composite - Attitude to School, Attitude to Teachers, and

Sensation Seeking (adolescent form only); four scales composing the Personal Adjustment Composite - Relationship with Parents, Self-Esteem, Self-Reliance and Interpersonal Relations; and two scales described as Other Problems - Sense of Inadequacy and Depression. Emotional Intelligence was defined through the following scales from the EQ-i: YV (Bar-On & Parker, 2000): Intrapersonal, Interpersonal, Adaptability, Stress Management, General Mood, Positive Impression, and Total EQ (Composite Score).

The third set of analyses was conducted to determine strength of relationship between parent-report of behavior and emotional intelligence. Emotional intelligence was measured using the six subscales from the EQ-i: YV (Bar-On & Parker, 2001). Parent report of behavior was measured by the following scales from the Child Behavior Checklist (Achenbach, 2001): Anxious/Depressed, Withdrawn/Depressed, Somatization, Thought Problems, Attention Problems, Rule Breaking, and Aggressive Behavior.

The fourth set of analyses was conducted to determine the degree to which the EQ-i: YV might predict significantly elevated scores on the Emotional Symptoms Index of the BASC-SRP, a composite made up of two scales from the Clinical Maladjustment composite (Social Stress and Anxiety), two scales from the Personal Adjustment composite (Interpersonal Relations and Self Esteem), and two scales that appear on no other composite (Depression and Sense of Inadequacy) (Reynolds & Kamphaus, 1992). The total sample was split into two groups based on each subject's score on the Emotional Symptoms Index. Subjects achieving a T-score of 69 or below were assigned to a group (not significantly elevated), while those scoring 70 or above were assigned to a second group (significantly elevated score). The six subtests from the EQ-i: YV were used as predictor variables.

The fifth set of analyses was performed to discover the relative contribution of cognitive intelligence and personality to the overall prediction of emotional intelligence. Cognitive Intelligence was operationally defined using the FSIQ score from the WISC-III (Wechsler, 1991) or the WASI (Wechsler, 1999). Personality was operationally defined through the following 12 scales from the Behavior Assessment System for Children-Self Report of Personality (BASC-SRP; Reynolds & Kamphaus, 1992): four scales composing the Clinical Maladjustment Composite- Anxiety, Atypicality, Locus of

Control, and Social Stress; two scales composing the School Maladjustment Composite - Attitude to School and Attitude to Teachers; four scales composing the Personal Adjustment Composite - Relationship with Parents, Self-Esteem, Self-Reliance and Interpersonal Relations; and two scales described as Other Problems - Sense of Inadequacy and Depression. Emotional Intelligence was operationally defined as the Total EQ score from the Emotional Quotient Inventory: Youth Version.

This chapter presents the results of this study including: (1) demographic characteristics of the sample, (2) means, standard deviations, and correlations of all variables of interest, and (3) data analysis results for each set of research hypotheses.

Demographic Data of the Sample

The sample for this study consisted of 143 students from various elementary, middle, and high schools throughout North Florida. The following is a description of the demographic data with the percentages for each category. More detailed information can be seen in Table 4.1. The sample consisted of 49.7% females and 50.3% males. The ethnic composition of the sample was comprised primarily of Caucasians (63.6%), followed by African Americans (14.7%), Hispanics (7.7%), Native Americans (5.6%), Asian Americans (2.8%), and 5.6% of the participants were identified as “other”. With regard to grade level, the percentage of each is as follows: second (1.4%), third (6.3%), fourth (19.6%), fifth (16.1%), sixth (9.1%), seventh (10.5%), eighth (27.9%), ninth (1.4%), tenth (2.1%), eleventh (4.9%), and twelfth (.7%). The age range was 8 to 18, with the mean age of the sample being 12.0.

With regard to the socioeconomic status, information pertaining to household income level was gathered. The percentage of each income level is as follows: Less than \$10,000 (6.3%), \$10,000 to 19,999 (14%), 20,000 to 34,999 (13.3%), 35,000 to 49,999 (13.3%), 50,000 to 64,999 (16.1%), 65,000 to 79,999 (9.1%), greater than \$80,000 (20.3%), and Unreported (7.6%). The highest educational level of the parents were reported as follows: elementary/middle school (mother – 2.1%; father - .7%), some high school (mother – 2.8%; father – 10.5%), high school (mother – 18.2%; father – 20.3%), some college (mother – 21.7%; father – 15.2%), college (mother – 29.4%; father – 17.5%), graduate school (mother – 7.7%; father – 12.6%), vocational/technical school (mother – 10.5%; father – 10.5%), and unreported (mother – 7.7%; father – 12.6%).

Table 4.1
Demographic Characteristics of Sample (n = 143)

<i>Variable</i>	<i>Number of Subjects</i>	<i>Percentage</i>
Gender		
Female	71	49.7
Male	72	50.3
Ethnicity		
African American	21	14.7
Asian American	4	2.8
Caucasian	91	63.6
Hispanic	11	7.7
Native American	8	5.6
Other	8	5.6
Age		
8-9	18	12.6
10-11	47	32.9
12-13	40	27.9
14-15	26	18.2
16-18	12	8.4
Grade Level		
2	2	1.4
3	9	6.3
4	28	19.6
5	23	16.1
6	13	9.1
7	15	10.5
8	40	27.9
9	2	1.4
10	3	2.1

Table 4.1—Continued

<i>Variable</i>	<i>Number of Subjects</i>	<i>Percentage</i>
Grade Level		
11	7	4.9
12	1	.7
Household Income		
Less than 10,000	9	6.3
10,000-19,999	20	14.0
20,000 to 34,999	19	13.3
35,000 to 49,999	19	13.3
50,000 to 64,999	23	16.1
65,000 to 79,999	13	9.1
Greater than 80,000	29	20.3
Unreported	11	7.6
Parent Educational Level		
Elementary/Middle School	Mother (3)	Mother (2.1)
	Father (1)	Father (.7)
Some High School	Mother (4)	Mother (2.8)
	Father (15)	Father (10.5)
High School	Mother (26)	Mother (18.2)
	Father (29)	Father (20.3)
Some College	Mother (31)	Mother (21.7)
	Father (22)	Father (15.2)
College	Mother (42)	Mother (29.4)
	Father (25)	Father (17.5)
Graduate School	Mother (11)	Mother (7.7)
	Father (18)	Father (12.6)
Vocational School	Mother (15)	Mother (10.5)
	Father (15)	Father (10.5)
Unreported	Mother (11)	Mother (7.7)
	Father (18)	Father (12.6)

Results of Data Analyses

The means and standard deviations of all variables of interest are presented in Table 4.2 (for correlational data, please see analyses I – III).

Preliminary Analysis

A one-way Analysis of Variance was conducted to determine whether any meaningful differences existed between the group of children who were referred for psychoeducational assessment and those who were not on the scales of the EQ-i: YV (Bar-On & Parker, 2000). Please see Table 4.3 for a tabular representation of these results. Based on this analysis, it was determined that no meaningful differences existed between the two groups. Therefore, the two samples were collapsed into one for the remainder of the analyses in this study.

Table 4.2
Means and Standard Deviations

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Observed Range</i>
EQ-i: YV	100	15	
Intrapersonal	102.2	16.7	65-130
Interpersonal	96.3	16.0	65-127
Stress Management	98.7	17.0	65-130
Adaptive Functioning	99.7	16.5	65-130
Total EQ	100.0	16.4	65-130
General Mood	100.0	16.1	65-130
Positive Impression	99.5	17.2	65-130
WECHSLER	100	15	
Full Scale IQ	101.9	14.8	69-144
BASC-SRP	50	10	
Attitude to School	49.4	9.2	38-74
Attitude to Teachers	48.7	8.8	39-74

Table 4.2—Continued

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Observed Range</i>
Sensation Seeking	50.1	9.0	35-74
Atypicality	47.8	9.4	37-78
Locus of Control	48.6	8.9	36-73
Somatization	49.8	10.2	39-80
Social Stress	46.9	9.3	32-71
Anxiety	48.0	10.4	34-70
Depression	48.9	8.7	41-77
Sense of Inadequacy	49.2	9.7	37-86
Relationship with Parents	52.1	6.7	21-58
Interpersonal Relations	52.0	8.6	13-58
Self-Esteem	53.1	7.7	22-58
Self-Reliance	51.7	9.4	19-62
School Maladjustment	52.1	8.4	25-72
Clinical Maladjustment	47.7	9.6	34-74
Personal Adjustment	52.6	8.4	20-61
Emotional Symptoms Index	47.5	9.1	36-78
CBCL	50	10	
Anxious/Depressed	55.4	7.4	50-85
Withdrawn/Depressed	56.8	8.2	50-87
Somatic Complaints	56.6	7.4	50-78
Thought Problems	56.5	9.0	50-93
Attention Problems	57.8	9.4	50-89
Rule Breaking	54.8	5.8	50-78
Aggressive Behavior	55.9	8.4	50-96

Table 4.3
Summary of ANOVA Results

	<u><i>Non-referred</i></u> (n = 83)		<u><i>Referred</i></u> (n = 60)		F (1, 141)
	Mean	SD	Mean	SD	
<i>Intrapersonal</i>	102.42	16.53	101.90	17.12	.034
<i>Interpersonal</i>	96.63	15.31	95.87	17.08	.078
<i>Stress Management</i>	99.10	16.60	98.15	17.69	.107
<i>Adaptability</i>	100.30	15.28	98.87	18.25	.260
<i>General Mood</i>	99.76	16.37	100.28	15.80	.283
<i>Positive Impression</i>	99.88	18.30	99.05	15.75	.037
<i>Total EQ</i>	100.58	15.28	99.10	17.83	.080

$F(.05; 1, 141) = 3.00$

Analysis I

Analysis I evaluated six hypotheses dealing with the strength of relationship between emotional intelligence and cognitive intelligence. To control for the family wise error rate due to the large number of tests utilized in this study, the p value for significance was set at the .001 level for Analyses I - III. Also, in determining strength of relationship, r-values were judged according to the following scale throughout this study: small correlations = .10 to .25, moderate correlations = .26 to .60, and large correlations = .61 to 1.0. Pearson Product Moment correlations were obtained between the Full Scale IQ variable and the subtests of the EQ-i: YV. Please see table 4.4 for the correlation coefficients. The following hypotheses were examined by this analysis.

Hypothesis 1: There will be a positive relationship between Intrapersonal abilities and cognitive intelligence.

Hypothesis 2: There will be a positive relationship between Interpersonal abilities and cognitive intelligence.

Hypothesis 3: There will be a positive relationship between Adaptability and cognitive intelligence.

Hypothesis 4: There will be a positive relationship between Stress Management and cognitive ability.

Hypothesis 5: There will be a positive relationship between General Mood and cognitive ability.

Hypothesis 6: There will be a positive relationship between Total EQ and cognitive ability.

For the total sample, a significant correlation was obtained between Full Scale IQ and Total EQ on the EQ-i: YV ($r = .272, p \leq .001$). A significant correlation was also witnessed between Full Scale IQ and the Adaptability subtest of the EQ-i: YV ($r = .317, p \leq .001$). No other significant correlations were obtained.

Table 4.4
Pearson Correlation Coefficients
Among EQ-i: YV and Full Scale IQ (n = 141)

	Full Scale IQ
Intrapersonal	.174
Interpersonal	.215
Adaptability	.317*
Stress Management	.150
General Mood	.128
Positive Impression	.101
Total EQ	.272*

* $p \leq .001$

In sum, a positive relationship does exist between Full Scale IQ and the broadband measure of emotional intelligence. However, correlations between IQ and the subscales of the EQ-i: YV are small or nonsignificant.

Analysis II

Analysis II evaluated 14 hypotheses dealing with the relationship between emotional intelligence and self-report of personality. These hypotheses are presented below.

Hypothesis 1: There will be a negative relationship between the Anxiety scale and the scales of the EQ-i: YV.

Hypothesis 2: There will be a negative relationship between Attitude to School and the scales of the EQ-i: YV.

Hypothesis 3: There will be a negative relationship between Attitude to Teachers and the scales of the EQ-i: YV.

Hypothesis 4: There will be a negative relationship between Atypicality and the scales of the EQ-i: YV.

Hypothesis 5: There will be a negative relationship between Depression and the scales of the EQ-i: YV.

Hypothesis 6: There will be a positive relationship between Interpersonal Relations and the scales of the EQ-i: YV.

Hypothesis 7: There will be a negative relationship between Locus of Control and the scales of the EQ-i: YV.

Hypothesis 8: There will be a positive relationship between Relationship with Parents and the scales of the EQ-i: YV.

Hypothesis 9: There will be a positive relationship between Self-Esteem and the scales of the EQ-i: YV.

Hypothesis 10: There will be a positive relationship between Self-Reliance and the scales of the EQ-i: YV.

Hypothesis 11: There will be a negative relationship between Sensation Seeking and the scales of the EQ-i: YV.

Hypothesis 12: There will be a negative relationship between Sense of Inadequacy and the scales of the EQ-i: YV.

Hypothesis 13: There will be a negative relationship between Somatization and the scales of the EQ-i: YV.

Hypothesis 14: There will be a negative relationship between Social Stress and the scales of the EQ-i: YV.

To determine the degree of relationship between emotional intelligence and self-report of personality, bivariate correlations were obtained among the subtests of the EQ-i: YV and the BASC-SRP (Reynolds & Kamphaus, 1992). Please see table 4.5 for a tabular representation of these results.

Significant correlations were obtained between many variables. Moderately high correlations (Please note: Moderate correlations were judged to range from .26 to .60) were witnessed among Total EQ and the following subtests of the BASC-SRP: Anxiety, Attitude to School, Attitude to Teachers, Atypicality, Depression, Interpersonal Relations, Locus of Control, Relationship with Parents, Self-Esteem, Self-Reliance, Sensation Seeking, Sense of Inadequacy, Somatization, and Social Stress. With regard to the BASC-SRP composite scales, the following were significantly correlated with Total EQ: Clinical Maladjustment, Personal Adjustment, and Emotional Symptoms Index.

The Intrapersonal scale of the EQ-i:YV was significantly correlated with the following subscales of the BASC-SRP: Atypicality, Depression, Relationship with Parents, Clinical Maladjustment Composite, Personal Adjustment Composite, and Emotional Symptoms Index. The Interpersonal scale was found to be significantly correlated with the following scales: Atypicality, Relationship with Parents, Self-Reliance, and Personal Adjustment Composite.

The Adaptability scale of the EQ-i: YV was found to be significantly correlated with the following subscales of the BASC-SRP: Anxiety, Attitude to School, Atypicality, Depression, Locus of Control, Self-Reliance, Sense of Inadequacy, and Social Stress, as well as with the following composite scales: Clinical Maladjustment, Personal Adjustment, and Emotional Symptoms Index.

The Stress Management scale of the EQ-i: YV was found to be significantly correlated with the following subscales of the BASC-SRP: Anxiety, Attitude to Teachers,

Atypicality, Depression, Interpersonal Relations, Locus of Control, Self-Esteem, Sense of Inadequacy, Somatization, and Social Stress, as well as with the following composite scales: Clinical Maladjustment Composite, Personal Adjustment Composite, and Emotional Symptoms Index.

The General Mood scale of the EQ-i: YV was significantly correlated with the following subscales of the BASC-SRP: Anxiety, Atypicality, Depression, Interpersonal Relations, Relationship with Parents, Self-Esteem, Self-Reliance, Sense of Inadequacy, Somatization, and Social Stress, as well as with the following composite scales: Clinical Maladjustment, Personal Adjustment, and Emotional Symptoms Index.

The Positive Impression scale of the EQ-i: YV was found to be significantly correlated with the following subscales of the BASC-SRP: Attitude to Teachers, Atypicality, Depression, Interpersonal Relations, Locus of Control, Relationship with Parents, Self-Esteem, Self-Reliance, Sense of Inadequacy, and Social Stress, as well as with the following composite scales: Clinical Maladjustment, Personal Adjustment, and Emotional Symptoms Index.

Table 4.5
Pearson Correlation Coefficients
Among EQ-i:YV and BASC-SRP (n = 143)

	<i>Intrapersonal</i>	<i>Interpersonal</i>	<i>Adaptability</i>	<i>Stress Management</i>	<i>General Mood</i>
<i>Anxiety</i>	-.237	-.120	-.346*	-.523*	-.448*
<i>Attitude to School</i>	-.225	-.193	-.358*	-.251	-.212
<i>Attitude to Teachers</i>	-.246	-.202	-.307	-.309*	-.247
<i>Atypicality</i>	-.270*	-.277*	-.401*	-.491*	-.435*
<i>Depression</i>	-.282*	-.240	-.373*	-.505*	-.544*
<i>Interpersonal Relations</i>	.226	.229	.219	.315*	.384*
<i>Locus of Control</i>	-.184	-.175	-.364*	-.456*	-.394
<i>Relationship with Parents</i>	.286*	.293*	.207	.221	.328*
<i>Self-Esteem</i>	.196	.118	.238	.367*	.505*
<i>Self-Reliance</i>	.231	.278*	.370*	.333	.427*
<i>Sensation Seeking</i>	-.250	-.141	-.239	-.317	-.071
<i>Sense of Inadequacy</i>	-.215	-.239	-.411*	-.428*	-.488*
<i>Somatization</i>	-.315	-.167	-.321	-.428*	-.477*
<i>Social Stress</i>	-.262	-.187	-.380*	-.519*	-.489*
<i>Clinical Maladjustment</i>	-.292*	-.215	-.434*	-.584*	-.531*

Table 4.5 – Continued

	<i>Intrapersonal</i>	<i>Interpersonal</i>	<i>Adaptability</i>	<i>Stress Management</i>	<i>General Mood</i>
<i>School Maladjustment</i>	-.138	-.043	-.088	-.134	-.045
<i>Personal Adjustment</i>	.334*	.328*	.394*	.474*	.590*
<i>Emotional Symptoms Index</i>	-.301*	-.241	-.428*	-.575*	-.610*

*p < .001

Table 4.5 –Continued

	<i>Positive Impression</i>	<i>Total EQ</i>
<i>Anxiety</i>	-.261	-.435*
<i>Attitude to School</i>	-.216	-.361*
<i>Attitude to Teachers</i>	-.316*	-.372*
<i>Atypicality</i>	-.388*	-.490*
<i>Depression</i>	-.304*	-.480*
<i>Interpersonal Relations</i>	.294*	.353*
<i>Locus of Control</i>	-.264*	-.412*
<i>Relationship with Parents</i>	.364*	.347*
<i>Self-Esteem</i>	.265*	.324*
<i>Self-Reliance</i>	.320*	.418*
<i>Sensation Seeking</i>	-.216	-.313
<i>Sense of Inadequacy</i>	-.291*	-.434*
<i>Somatization</i>	-.296	-.405*
<i>Social Stress</i>	-.282*	-.474*
<i>Clinical Maladjustment</i>	-.351*	-.533*
<i>School Maladjustment</i>	-.121	-.139
<i>Personal Adjustment</i>	.431*	.523*
<i>Emotional Symptoms Index</i>	-.358*	-.538*

* p < .001

Analysis III

Analysis III evaluated seven hypotheses dealing with the relationship between emotional intelligence and parent-report of behavior. These hypotheses are presented below.

Hypothesis 1: There will be a negative relationship between Anxious/Depressed and the scales of the EQ-i: YV.

Hypothesis 2: There will be a negative relationship between Withdrawn/Depressed and the scales of the EQ-i: YV.

Hypothesis 3: There will be a negative relationship between Somatization and the scales of the EQ-i: YV.

Hypothesis 4: There will be a negative relationship between Thought Problems and the scales of the EQ-i: YV.

Hypothesis 5: There will be a negative relationship between Attention Problems and the scales of the EQ-i: YV.

Hypothesis 6: There will be a negative relationship between Rule Breaking and the scales of the EQ-i: YV.

Hypothesis 7: There will be a negative relationship between Aggressive Behavior and the scales of the EQ-i: YV.

To investigate the relationship between emotional intelligence and parent report of behavior, bivariate correlations were obtained among the subscales of the EQ-i:YV and the Child Behavior Checklist (Achenbach, 2001). The correlations are presented in table 4.6.

Only the adaptability and stress management subscales of the EQ-i: YV demonstrated significant correlations with the Child Behavior Checklist (Achenbach, 2001). The Stress Management subscale was moderately correlated with (i.e. r 's ranging from .25 to .60) Anxious Depressed, Somatization, Thought Problems, Attention Problems, and Aggressive Behavior. The Adaptability subscale was found to be significantly correlated with Somatization, Attention Problems, and Aggressive Behavior.

Table 4.6
Pearson Correlation Coefficients
Among EQ-i:YV and CBCL (n = 117)

	<i>Intrapersonal</i>	<i>Interpersonal</i>	<i>Adaptability</i>	<i>Stress Management</i>	<i>General Mood</i>
<i>Anxious/Depressed</i>	-.216	-.159	-.251	-.311*	-.240
<i>Withdrawn/Depressed</i>	-.144	-.181	-.210	-.099	-.119
<i>Somatization</i>	-.150	-.138	-.316*	-.297*	-.245
<i>Thought Problems</i>	-.167	-.184	-.279	-.344*	-.204
<i>Attention Problems</i>	-.103	-.116	-.293*	-.296*	-.229
<i>Rule Breaking</i>	-.137	-.147	-.230	-.287	-.232
<i>Aggressive Behavior</i>	-.177	-.152	-.294*	-.325*	-.255

*p ≤ .001

Table 4.6—Continued

	<i>Positive Impression</i>	<i>Total EQ</i>
<i>Anxious/Depressed</i>	-.102	-.343*
<i>Withdrawn/Depressed</i>	.007	-.213
<i>Somatization</i>	-.263	-.309*
<i>Thought Problems</i>	-.154	-.362*
<i>Attention Problems</i>	-.075	-.278
<i>Rule Breaking</i>	-.163	-.278
<i>Aggressive Behavior</i>	-.158	-.334*

p < .001

In sum, based on the previously discussed results, there is evidence to suggest that the proposed directional hypotheses may be accepted. It should be noted that significant relationships existed primarily between the scales of the CBCL and the Stress Management and Total EQ scales of the EQ-i: YV. These correlations were in the small to moderate range.

Analysis IV

Analysis IV evaluated one hypothesis dealing with the degree to which emotional intelligence could be used as a predictor of significantly elevated scores on an index of emotional disturbance. The stated hypothesis for this analysis is presented below.

Hypothesis: Emotional intelligence (as measured by the subtests of the EQ-i: YV) will predict significantly elevated scores on the ESI of the BASC-SRP.

To determine the degree to which the EQ-i: YV could predict significantly elevated scores, a discriminant analysis was performed using the Emotional Symptoms Index from the BASC-SRP (Reynolds & Kamphaus, 1992) as the criterion variable and the six subtests from the EQ-i: YV as predictor variables. The total sample was split into two groups based on each subject's performance on the Emotional Symptoms Index. Subjects achieving a T-score of 69 or less were assigned to group one (non-significantly elevated scores; NSES), while those scoring 70 or above were assigned to group two (significantly elevated scores; SES). A sample of 143 individuals was available for analysis. The means and standard deviations for this sample are shown in Table 4.7. Visual inspection of histograms and scatter plots did not suggest any outliers that might exert excessive influence on the study results.

Table 4.7
Means and Standard Deviations for Classification Analysis^{a, b}

<i>Group</i> (n)	<i>Classification</i>			<i>Variables</i>		
	Intrapersonal	Interpersonal	Stress Mgmt	Adaptive	General Mood	Positive Impression
NSES (126)	103.4 (16.8)	97.4 (15.9)	101.2 (15.9)	101.6 (15.7)	103.0 (14.2)	101.6 (16.8)
SES (17)	93.1 (13.2)	88.5 (15.0)	80.1 (12.9)	85.1 (15.6)	77.2 (9.5)	84.1 (11.2)

^a Standard deviations are in parentheses

^b NSES = Non-Significantly Elevated Score Group; SES = Significantly Elevated Score Group

Assumptions required for a MANOVA overall test to confirm real differences between the two groups and to use linear discriminant analysis for classification are that the observations in each group are multivariate normally distributed and that the covariance matrices are equal over the groups. Visual inspection of histograms for all variables in each of the groups did not indicate any severe violations of the assumption of multivariate normality. Box's test of equality of covariance matrices was utilized to test the assumption of homogeneity of the covariance matrices. The Box's M test of the null that the covariance matrices are equal was rejected at the .05 level but not at the .01 level (Box's M = 38.499, F[21, 2846.788] = 1.57, p = .047). The associated p-value of .047 suggests that the violation associated with the covariances of the variables is not very serious, supporting the application of the standard linear classification procedure.

The overall multivariate test was statistically significant at the .001 level (Wilk's Lambda = .589, chi-square with 6 degrees of freedom = 34.987, p < .000), thus supporting an attempt to classify individuals into different groups. Considering the standardized discriminant variate coefficients, the dominant predictor variable was General Mood with a coefficient of .953. The coefficients for each remaining variate are as follows: Intrapersonal (.032), Adaptive Functioning (-.052), Positive Impression (.218), Stress Management (.355), and Interpersonal (-.471).

The derived classification was based on the Bayesian posterior probability of group membership, assigning each individual to the group with the highest probability of membership. The prior probabilities required in the determination of the Bayesian posterior probabilities were assumed to be equal to the relative sizes of the two groups; thus, the priors for groups NSES and SES were .500 and .500 respectively. The resulting classification based on the Bayesian posterior probabilities can also be accomplished with the classification function coefficients shown in Table 4.8.

Application of the derived classification procedure to the individuals in the sample resulted in the classification results shown in Table 4.9. Compared to the prior probabilities (i.e. the hit rates that could be obtained with random classification based only on prior knowledge), the proportion of correct classification was high for both groups (for NSES .841 vs. prior of .500; for SES .941 vs. prior of .500). Overall, .853 of all the cases were correctly classified compared to the proportion of .500 that would be expected due only to chance (obtained by summing the squares of the priors).

Table 4.8
Classification Function Coefficients

Variable	Group	
	<i>NSES</i>	<i>SES</i>
<i>Intrapersonal</i>	.183	.179
<i>Interpersonal</i>	.044	.109
<i>Stress Management</i>	.210	.160
<i>Adaptive</i>	.072	.079
<i>General Mood</i>	.263	.111
<i>Positive Impression</i>	.133	.104

Table 4.9
Classification Results^a

<i>Actual Group</i>	<i>Number Of Cases</i>	<i>Predicted Group</i>	
		NSES	SES
NSES	126	106	20
SES	17	1	16

^a The total percent of cases correctly classified was 85.3%

In sum, the derived classification procedure would be acceptable to identify those children evidencing elevated emotional difficulties. Therefore, there is strong evidence to support the suggested hypothesis that the EQ-i: YV predicts significantly elevated scores on the Emotional Symptoms Index on the BASC-SRP (Reynolds & Kamphaus, 1992).

Analysis V

Analysis V evaluated two hypotheses dealing with the relative contribution of cognitive intelligence and emotional intelligence to the overall prediction of emotional intelligence. The stated hypotheses are presented below.

Hypothesis 1: Personality (as measured by the BASC-SRP) will account for the greatest amount of variance in emotional intelligence, controlling for all other variables.

Hypothesis 2: Cognitive intelligence (as measured by Full Scale IQ) will account for the least amount of variance in emotional intelligence, controlling for all other variables.

In order to evaluate the relative contribution of cognitive intelligence and personality to the overall prediction of emotional intelligence, a sequential (hierarchical) multiple regression analysis was conducted. In such an analysis, the independent variables (IV's), or predictors, enter the equation in an order specified by the researcher. This order of entry is based on a theoretical, a-priori determination of the relationships among the constructs. Each IV is assessed in terms of what it adds to the equation at its own point of entry. A sequential (hierarchical) multiple regression is useful when a study has a large number of variables representing a smaller number of constructs. This technique allows the researcher to evaluate the constructs by entering the IV's in blocks, thus maintaining smaller degrees of freedom and reducing the error rate. (Tabachnick & Fidell, 1996).

For the current analysis, Total EQ was used as the criterion variable. The predictor variables included the following: Step 1: Personal Adjustment Composite, as measured by Relationship with Parents, Self-Esteem, Self-Reliance, and Interpersonal Relations; Step 2: School Maladjustment Composite as measured by Attitude to School and Attitude to Teachers; Step 3: Clinical Maladjustment Composite as measured by Anxiety, Atypicality, Locus of Control, and Social Stress; Step 4: Other Problems as measured by Sense of Inadequacy and Depression; Step 5: Full Scale IQ. The correlations among the variables, along with the means and standard deviations are provided in Table 4.10. The effects of the predictor variables on emotional intelligence are summarized in Table 4.11.

The model R^2 of .423 for step 3, reflecting the overall strength of relationship between emotional intelligence and personal adjustment composite, school maladjustment composite, and clinical maladjustment composite, was statistically significant at the .01 level, $F(10, 130) = 9.54, p < .01$. The overall strength of relationship was also significant for steps one and two. Therefore, the variables included in step 3 (see Table 4.12) result in the best model in terms of predicting Total EQ or emotional intelligence, when controlling for all other variables and using the BASC-SRP (Reynolds & Kamphaus, 1992). Therefore, the results of model 3 will be discussed.

The positive effect of Relationship with Parents on emotional intelligence, significant at the .05 level, reflects an estimated change of .156 emotional intelligence units for every unit change in Relationship with Parents, controlling for all other variables. The unique contribution of the Relationship with Parents scale to the model R^2 (ΔR^2) was .018. Attitude to School had a unique contribution to the model R^2 of .021. The corresponding beta weight of -.173 was statistically significant at the .05 level. No other variables contributed significantly to the model.

The R^2 of .440 for step 5, reflecting the overall strength of relationship between emotional intelligence and the predictor variables, was not statistically significant. This indicates that adding cognitive intelligence to the model does not account for a significant amount of unexplained variance when controlling for all other variables. Additionally, the R^2 of .425 for model 4, reflecting the overall strength of relationship between emotional intelligence and the four composite scales of the BASC-SRP, was not

statistically significant. This indicates that adding the fourth step to the model (other problems: sense of inadequacy and depression) does not account for a significant amount of unexplained variance, controlling for all other variables.

In sum, the statistical results discussed above suggest that aspects of personality contribute more heavily to the prediction of overall emotional intelligence than does cognitive intelligence. Therefore, there is evidence in favor of accepting the hypotheses proposed for this analysis.

Correlations Among the Subtests of the EQ-i: YV

To provide additional evidence for the validity of the EQ-i: YV, the intercorrelations among the subtests are provided in Table 4.13. Consistent with the original validation sample, low to moderate correlations were evidenced among the Intrapersonal, Interpersonal, Stress Management, and Adaptability scales. A high degree of correlation was evidenced among most scales of the EQ-i: YV and the composite score (Total EQ).

A discussion of these results will be presented in the following chapter. A summary of results has been included at the beginning of chapter V to facilitate continuity and provide a quick reference for the rest of chapter V, which includes interpretation of results, recommendations for future research, limitations of the study, and conclusions.

Table 4.11
Means, Standard Deviations, and Correlation Coefficients

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>
<i>Total EQ</i>	1.0													
<i>Relationship Parents</i>	.347	1.0												
<i>Interpersonal Relations</i>	.353	.209	1.0											
<i>Self Esteem</i>	.331	.212	.367	1.0										
<i>Self Reliance</i>	.418	.363	.400	.462	1.0									
<i>Attitude to School</i>	-.359	-.177	-.033	-.191	-.279	1.0								
<i>Attitude to Teachers</i>	-.373	-.247	-.091	-.290	-.227	.466	1.0							
<i>Anxiety</i>	-.446	-.078	-.393	-.487	-.291	.126	.218	1.0						
<i>Atypicality</i>	-.493	-.311	-.456	-.489	-.354	.243	.352	.641	1.0					
<i>Locus of Control</i>	-.416	-.269	-.286	-.352	-.312	.315	.332	.531	.511	1.0				

Table 4.11—Continued

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>
<i>Social Stress</i>	-.481	-.215	-.573	-.467	-.362	.222	.296	.723	.590	.642	1.0			
<i>Depression</i>	-.485	-.351	-.415	-.650	-.492	.323	.372	.562	.568	.615	.727	1.0		
<i>Sense of Inadequacy</i>	-.438	-.195	-.361	-.586	-.447	.365	.303	.539	.570	.554	.498	.704	1.0	
<i>IQ</i>	.272	.098	.160	.093	.260	-.149	-.093	-.098	-.224	-.117	-.060	-.155	-.261	1.0
<i>Mean</i>	100.10	52.11	52.04	53.04	51.76	49.28	48.72	48.15	47.83	48.63	46.98	48.96	49.20	101.94
<i>Standard Deviation</i>	16.42	6.76	8.66	7.76	9.38	9.20	8.83	10.42	9.48	8.92	9.36	8.74	9.63	14.76

Table 4.12
Summary of Regression Results

Variable	Effect Estimate (b)	R ²	DR ²
Step 1: Personal Adjustment		.265*	.265*
Relationship with Parents	.206**		
Interpersonal Relations	.179*		
Self Esteem	.123		
Self Reliance	.215**		
Step 2: School Maladjustment		.350*	.085*
Relationship with Parents	.156*		
Interpersonal Relations	.222**		
Self Esteem	.060		
Self Reliance	.150		
Attitude to School	-.198**		
Attitude to Teachers	-.170*		
Step 3: Clinical Maladjustment		.423*	.073*
Relationship with Parents	.156*		
Interpersonal Relations	.097		
Self Esteem	-.068		
Self Reliance	.147		
Attitude to School	-.173*		
Attitude to Teachers	-.119		
Locus of Control	-.203		
Anxiety	-.117		
Atypicality	-.018		
Social Stress	-.069		
Step 4: Other Problems		.425	.002
Relationship with Parents	.154*		
Interpersonal Relations	.096		
Self Esteem	-.097		
Self Reliance	.137		
Attitude to School	-.162*		
Attitude to Teachers	-.120		
Locus of Control	-.198		
Anxiety	-.108		
Atypicality	.002		
Social Stress	-.055		
Sense of Inadequacy	-.045		

Table 4.12—Continued

Variable	Effect Estimate (b)	R ²	DR ²
Step 4: Other Problems (Continued)			
Depression	-.047		
Step 5: Cognitive Intelligence		.440	.015
Relationship with Parents	.159*		
Interpersonal Relations	.082		
Self Esteem	-.075		
Self Reliance	.110		
Attitude to School	-.155		
Attitude to Teachers	-.120		
Locus of Control	-.199		
Anxiety	-.082		
Atypicality	.001		
Social Stress	-.087		
Sense of Inadequacy	-.040		
Depression	-.020		
Full Scale IQ	.132		

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

Table 4.13
Intercorrelations Among the Subtests of the EQ-i: YV

	1	2	3	4	5	6	7
Intrapersonal	1						
Interpersonal	.399	1					
Adaptability	.357	.506	1				
SM	.320	.288	.423	1			
Total EQ	.710	.705	.757	.672	1		
General Mood	.354	.598	.621	.470	.699	1	
PI	.371	.411	.488	.386	.560	.476	1

CHAPTER V

CONCLUSION

The purpose of this study was to contribute to the understanding of emotional intelligence as it occurs in children and adolescents by investigating the psychometric properties (e.g. validity) of the Emotional Quotient Inventory: Youth Version (EQ-i: YV; Bar-On & Parker, 2000). The EQ-i: YV is based on Bar-On's theory of emotional intelligence, which was developed after he reviewed the literature concerning personality characteristics related to life success. The theory is purported to describe "emotional and social competence" (Bar-On, 2000, p. 364), and "key components of effective emotional and social functioning that lead to psychological well-being" (Bar-On, 2000). Specifically, Bar-On states that the EQ-i can be accurately described as "a self-report measure of emotionally and socially competent behavior that provides an estimate of one's emotional and social intelligence" (Bar-On, 2000, p. 364). Based on this description, test users may be confused as to exactly what the test is measuring (e.g. emotional/social competence, emotional intelligence, or personality variables). Therefore, it is important to examine the psychometric properties of the EQ-I:YV to ascertain exactly what the test is measuring as well as to aid in the refinement of emotional intelligence theory overall.

The validation of this instrument involved considering its relationship to cognitive intelligence, self-report of personality, and parent-report of behavior. Emotional Intelligence was measured using the EQ-i: YV (Bar-On & Parker, 2000), and defined through the following six scales: Intrapersonal, Interpersonal, Adaptability, General Mood, Positive Impression, and Total EQ. Cognitive intelligence was defined as the Full Scale IQ score from the WISC-III or WASI. Personality was measured using the Behavioral Assessment System for Children – Self Report of Personality (BASC-SRP; Reynolds & Kamphaus, 1992) and defined as the 14 scales composing this instrument.

Parent-report of behavior was defined as the six subscales of the Child Behavior Checklist (CBCL; Achenbach, 2001).

Summary of Results

For the current study, five separate sets of analyses were conducted for investigating the associated relationships between cognitive intelligence, personality, parent-report of behavior, and referral for assessment of psychosocial/learning difficulties, respectively, with emotional intelligence. For the first analysis, Full Scale IQ was significantly correlated with the Total EQ and Adaptability scales of the EQ-i: YV. No other significant correlations were obtained. In determining the strength of relationship between emotional intelligence and self-report of personality (Analysis II), many significant correlations were obtained. The reader is referred to chapter 4 for a full presentation of these results as it is not parsimonious nor is it within the scope of this chapter to report the individual findings. For the third analysis, only the adaptability and stress management scales of the EQ-i: YV demonstrated significant correlations with the Child Behavior Checklist (Achenbach, 2001) when looking at the total sample.

To determine the degree to which the EQ-i: YV could predict significant emotional disturbance, a discriminant analysis was performed using the Emotional Symptoms Index from the BASC-SRP as the criterion variable and the six subtests from the EQ-i: YV as predictor variables. The overall multivariate test was significant at the .001 level, supporting an attempt to classify individuals into different groups. The dominant predictor variable was the General Mood scale. The derived classification procedure classified 85.3 % of cases correctly.

The fifth and final analysis considered the relative contribution of cognitive intelligence and personality to the overall prediction of emotional intelligence. This was accomplished by employing a sequential multiple regression technique. Total EQ was utilized as the criterion variable. The predictor variables included the following: Step 1: Personal Adjustment Composite, as measured by Relationship with Parents, Self-Esteem, Self-Reliance, and Interpersonal Relations; Step 2: School Maladjustment Composite as measured by Attitude to School and Attitude to Teachers; Step 3: Clinical Maladjustment Composite as measured by Anxiety, Atypicality, Locus of Control, and Social Stress; Step 4: Other Problems as measured by Sense of Inadequacy and Depression; Step 5: Full

Scale IQ. The variables included in step 3 resulted in the best model in terms of predicting emotional intelligence when controlling for all other variables. This set of predictors accounted for 42.3% of the total variance in emotional intelligence, with Attitude to School and Relationship with Parents contributing most heavily to the model.

Interpretation of Results

Analysis I

The first analysis investigating the correlation between emotional intelligence and cognitive intelligence resulted in modest findings. Given the exploratory nature of this study, the results were noteworthy, nonetheless, as key findings were statistically significant. This is enlightening with regard to future research, more so than being disappointing because of limited support of individual hypothesis. The present findings support previous findings with regard to the limited relationship between emotional and cognitive intelligences and help to further refine the concept of emotional intelligence, in general.

Of the six hypotheses proposed, two were supported by the data for the total sample. The Adaptability scale of the EQ-i:YV was moderately correlated with cognitive intelligence. This is not surprising as the Adaptability scale taps one's problem solving and "realistic thinking" (Bar-On & Parker, 2000) capabilities. Such skills are traditionally measured by "cognitive" intelligence tests. The reader is referred to Chapter 2 for a more in depth discussion of modern and traditional measures of intelligence.

Although the Total EQ scale was found to be significantly correlated with cognitive intelligence, the results were a moderate to low positive correlation ($r = .272$). This is similar to the findings obtained by Bar-On and Parker when developing the EQ-i:YV (2000). In the development sample, a low, positive correlation was obtained between IQ and Total EQ ($r = .12$) and the Reasoning subtest of the 16 PF ($r = .13$). Such findings support the claim that a relatively small relationship exists between emotional intelligence and cognitive intelligence (Bar-On & Parker, 2000). As a result, one can assume that emotional intelligence as measured by the EQ-i:YV is measuring something different from what is measured by traditional tests of intellectual functioning.

Analysis II

As stated previously, the second set of analyses were aimed at discovering the degree of relationship between emotional intelligence and self-report of personality. There was evidence to support all of the fourteen hypotheses proposed for this analysis. Such findings indicate a high degree of relationship between the EQ-i: YV and self-report of personality.

Thirteen subtests of the BASC-SRP (Reynolds & Kamphaus, 1992) were significantly correlated with Total EQ. Only the Sensation Seeking subtest was not significantly correlated. However, it did evidence a moderate, negative correlation as was proposed in the hypotheses. The Atypicality subtest was most highly correlated with Total EQ ($r = -.490$). This subtest evaluates behaviors and thoughts that are commonly associated with severe forms of psychopathology. Such findings are not surprising as individuals with high scores on the Atypicality subtest have “a tendency toward gross mood swings, bizarre thoughts, subjective experiences, or obsessive-compulsive thoughts and behaviors often considered odd” (Reynolds & Kamphaus, 1992), while children exhibiting high scores on Total EQ “are generally effective in dealing with daily demands and are typically happy” (Bar-On & Parker, 2000). Similar findings were evidenced between the Atypicality subtest and the Adaptability, Stress Management, and General Mood subtests of the EQ-i: YV. Based on these findings, one could assume that the EQ-i: YV is measuring the “absence” of psychopathology as it is traditionally measured by personality assessments.

The pattern of correlations among the subtests of the BASC-SRP and the Stress Management scale of the EQ-i: YV further support the claim that the EQ-i: YV is measuring the absence of psychopathology, or rather, one’s ability to function adaptively. The Social Stress, Anxiety, and Depression scales were the most highly correlated with the Stress Management scale ($r = -.519, -.523, \text{ and } -.505$, respectively). These scales are known as the SAD triad on the BASC-SRP. High scores on this triad represent “severe emotional disturbance characterized by depression with great tension and severe, acute distress” (Kamphaus & Reynolds, 2000). When all three scores are elevated, the possibility of impending decompensation and suicidality exist. On the other hand, Stress Management measures calmness and the ability to work under pressure. Individuals

scoring high on this scale typically lack impulsivity and “usually respond to a stressful event without an emotional outburst” (Bar-On & Parker, 2000).

Furthermore, the Self-Reliance, Self-Esteem, Relationship with Parents, and Interpersonal scales, which make up the “Personal Adjustment” composite scale of the BASC-SRP were all moderately, positively correlated with Total EQ ($r = .418, .324, .347, \text{ and } .353$, respectively). This lends credibility to the claim that the EQ-i: YV is largely a measure of social/emotional competence, as opposed to a pure measure of emotional intelligence. Please refer to chapter 2 for a discussion of the degree to which the EQ-i: YV has been described as measuring social/emotional competence.

The Depression subtest was also significantly correlated with Total EQ ($r = -.480$). Again, such findings are expected as children with high scores on Total EQ are “typically happy” (Bar-On & Parker, 2000), while children with high scores on Depression typically experience feelings of unhappiness and dejection. The Depression subtest also evidenced high correlations with the Stress Management ($-.505$) scale and the General Mood ($-.544$) scale of the EQ-i: YV. These results suggest that the EQ-i: YV is also measuring “mood” as it is traditionally measured by self-report of personality.

Both the Interpersonal and Intrapersonal scales of the EQ-i: YV were found to exhibit fewer significant correlations with the scales of the BASC-SRP than did the other subtests comprising the EQ-i: YV. This is of particular interest as both scales deal with key components of emotional intelligence as it has been historically defined. Emotional intelligence theory developed out of Thorndike’s concept of social intelligence (Thorndike, 1927) and Gardner’s concept of personal intelligence (Gardner, 1983). According to Gardner (1983), personal intelligence consists of two constructs: interpersonal and intrapersonal intelligence. Interpersonal intelligence is purported to focus on external events and involves the recognition and evaluation of feelings in others. Intrapersonal intelligence focuses on the self and one’s ability to recognize and evaluate their own feelings.

Gardner’s conceptualizations are theoretically consistent with what Bar-On and Parker (2000) purport the Intrapersonal and Interpersonal scales of the EQ-i: YV to measure. According to test authors, those individuals scoring high on the Intrapersonal scale of the EQ-i: YV typically understand their emotions and are able to communicate

their feelings and needs. Individuals with high scores on the Interpersonal scale are likely to have satisfying interpersonal relationships, are good listeners, and are able to understand and appreciate the feelings of others (Bar-On & Parker, 2000).

Mayer, Salovey, and Caruso (2000), leading proponents of emotional intelligence theory, assert that emotional intelligence should be conceptualized as a type of intelligence that processes and benefits from emotions and is composed of mental abilities, skills, or capacities. Encompassed in the processing of affective information is what Mayer, Caruso, and Salovey (2000) describe as one's ability to "manage and regulate emotions in oneself and others." This ability to manage and regulate emotions in oneself and others is what Gardner and Bar-On have referred to as Interpersonal and Intrapersonal intelligence. Therefore, it is possible that the underlying construct measured by the Interpersonal and Intrapersonal scales of the EQ-i: YV involves the cognitive processing of emotionally laden information whereby one takes in emotional information about the self and others, processes the information, and then makes a decision about how to act based upon the information received from the self and environment. If this is true, then Intrapersonal and Interpersonal scales of the EQ-i: YV may tap what is thought of as emotional intelligence to a greater degree than do the other scales, which appear to tap what is commonly thought of as personality traits.

Analysis III

The third analysis focused on determining the strength of relationship between emotional intelligence and parent report of behavior. Total EQ was significantly correlated with the Anxious/Depressed, Somatization, Thought Problems, and Aggressive Behavior subtests of the CBCL. As with the BASC-SRP, the EQ-i: YV appears to be measuring the "absence" of psychopathology when compared to parental report of behavior. The Adaptability and Stress Management scales were the only subtests from the EQ-i: YV to correlate significantly with the CBCL. Interestingly, General Mood was not significantly correlated with the CBCL, which suggests that mood may be a more significant factor with regard to self-appraisal of emotional functioning as opposed to parental appraisal. The Intrapersonal and Interpersonal scales, key components of emotional intelligence, were not significantly correlated with the CBCL. Such findings are consistent with self-report of personality outcomes and suggest that these scales are

measuring something different from what is traditionally measured by parent report of behavior.

Analysis IV

The fourth analysis focused on the degree to which emotional intelligence could predict significant emotional disturbance. Based on the results of this analysis, there is evidence to support the proposed hypothesis that emotional intelligence as measured by the EQ-i: YV predicts emotional disturbance among children by distinguishing between a group of children with significantly elevated scores on a self-report of personality as opposed to a group with non-significant scores.

The results of the discriminant function analysis found the overall multivariate test to be significant. Such a result supports an attempt to classify individuals into differing groups. The dominant predictor variable was General Mood when considering the overall test. Application of the derived classification procedure resulted in 84% of the cases being correctly classified for the Non-Significant Emotional Disturbance group and 94% of the cases for the Significant Emotional Disturbance group. Overall, 85% of the cases were correctly classified.

Analysis V

The fifth analysis was concerned with determining the relative contribution of cognitive intelligence and personality to the overall prediction of emotional intelligence. In order to determine the unique contribution of these variables, a sequential (hierarchical) multiple regression analysis was performed. The overall relationship was found to be significant for steps 1 - 3 and the predictor variables were found to account for 42.3% of the variance in Total EQ, indicating a moderate strength of relationship. When looking at the effects of each predictor variable on the model, Relationship with Parents and Attitude to School contributed significantly and to largely the same degree ($\Delta R^2 = .018$ and $.021$, respectively). Cognitive intelligence did not contribute to the model and was statistically excluded. As a result, one may conclude that positive interpersonal relationships and feelings of adequacy with regard to adaptive functioning play a particularly large role in determining the degree to which one can be considered "emotionally intelligent" by the EQ-i:YV.

Recommendations for Future Research

Due to the exploratory nature of this study, as well as the relative newness of the theory of emotional intelligence, significant findings should be considered preliminary and serve as a guide for future research. Replication of the study resulting in findings that support those of this study would provide further evidence useful in generalizing to similar populations. This study demonstrates a need for further research exploring the validity of self-report instruments in the measurement of emotional intelligence. Implications for future research embedded throughout this chapter provide a framework from which to direct future studies. Specific implications and recommendations derived from this study may assist with refining the theory of emotional intelligence as applied to children and adolescents in addition to improving current measurement techniques.

With regard to theory refinement, an ongoing concern in the emotional intelligence arena is the variance among competing theoretical conceptualizations of the construct. As discussed in Chapter 2, there are two competing conceptualizations of emotional intelligence: mixed models and ability models. That is, each model is differentiated by the degree to which it focuses exclusively on mental abilities (ability models measured by performance based instruments) or mixes mental abilities with personality attributes (mixed models measured by self-report instruments). The EQ-i: YV (Bar-On & Parker, 2000), the instrument of concern for the present study, is a measurement technique based on a mixed model. As such, it includes various aspects related to personality by definition.

The personality attributes that are included in mixed models of emotional intelligence create concern when attempting to measure the construct of emotional intelligence. As demonstrated in this study, the EQ-i: YV is highly correlated with many of the constructs measured by self-report of personality. Although this is to be expected by theoretical definition, it confounds the validity of the instrument as a measure of emotional intelligence because the instrument clearly measures personality traits. This indicates that the test as a whole does not measure anything different from what we are already measuring by self-report of personality and therefore, cannot be considered a valid test of emotional intelligence.

The high degree of relationship between the EQ-i: YV and the BASC-SRP leads us to question whether the EQ-i: YV tells us anything that the BASC-SRP does not. To help answer this question, a future study might utilize both the BASC-SRP and the EQ-i: YV as predictors of adaptive functioning (i.e. success in school) to determine whether the EQ-i: YV accounts for any additional variance in prediction over and above what is accounted for by the BASC-SRP. Such a study would help test users to better understand what the EQ-i: YV is measuring as well as what it is useful for in a practical sense.

Even though the EQ-i: YV was highly correlated with personality overall, the interpersonal and intrapersonal subtests were correlated to a much lesser extent. As discussed earlier, these two subtests tap widely agreed upon aspects of emotional intelligence. Therefore, it is possible that they measure something that is different from what we typically think of as a personality trait or measure as cognitive intelligence. It may be useful to explore the degree to which the items comprising these subtests could stand alone as an instrument and possibly new measure of emotional intelligence. Additionally, the underlying constructs could be expounded upon and the item content expanded.

Due to the EQ-i: YV's high degree of correlation with the personality measure used in this study, it would be useful to explore the degree of relationship between an ability measure of emotional intelligence in children and adolescents (as opposed to a mixed model based, self-report style instrument like the EQ-i: YV) a measure of personality. This type study would allow researchers to ascertain whether the same relationship with personality measures holds true for performance-based measures of emotional intelligence as it does for self-report measures of emotional intelligence. Such a study would lend further evidence to support or disconfirm the presence of emotional intelligence as a "real and valid intelligence" that is different from human characteristics typically thought of as personality traits.

With regard to ability models (performance based models focusing on mental abilities as opposed to self-report models such as the EQ-i: YV), it would be useful to explore the degree of relationship between IQ and emotional intelligence. Since ability models focus on mental abilities, it is possible that these models could be highly correlated with intellectual ability to the same degree as mixed models (self-report based

models containing personality variables) are correlated with personality. With such information, ongoing theory refinement could occur as well as provide further evidence for validation of the construct.

With an adequately defined construct and sufficiently validated measures, the effects of emotional intelligence could be ascertained through further research and then applied to clinical settings. Such information could be useful in determining the degree to which individuals can be shaped in terms of successfully navigating environments filled with emotionally laden information. This could be particularly important for children in school settings, where the ability to forge friendships and master social roles is arguably crucial. It is logical to assume that such skills could lead to greater happiness in the school setting, enhance feelings of self-acceptance, and decreased negative moods. Although the primary focus of this study is on children and adolescents, it is easy to understand how the same skills could be important to adults in a work setting, thereby creating a need for increased understanding and further research of this construct with regard to adult populations.

Limitations of The Study

Attempts were made to control for possible threats to validity of this study. However, as is the case with all research, there were several limitations. The limitations that appear noteworthy were the exploratory nature of the study, use of a volunteer sample, and restrictions to generalizability due to subject demographics (e.g. demographic location).

Above all, it is important to note that due to the exploratory nature of this study, significant findings should be considered preliminary and serve as a guide for future research. Replication of the study resulting in findings that support those of this study would provide further evidence useful in generalizing findings to similar populations.

A second limitation of this study regarding generalizability of findings was presented by using a volunteer sample. It was necessary to use children and adolescents being referred for psychoeducational assessment in order to answer the proposed research questions. Those children referred for assessment were tested at a university clinic specializing in psychoeducational assessment. As such, the findings related to this group could only be generalized to clinic-referred children. Furthermore, a second sample of

non-referred children was obtained from volunteers attending a rural, Southeastern school district. Any conclusions drawn from this sample will be limited to a similar population as well.

According to Smith and Glass (1987), generalizations made from a nonprobability sample to its population must be made based on reasoned comparison of the sample with the population. While statistical inferences based on these results are limited to the current sample, reasonable comparisons could be made to similar populations because a diverse population was sampled with regard to demographics (i.e. race, age, socio-economic status), which is representative of the typical characteristics of a student attending a Southeastern school district.

Conclusions

In conclusion, the EQ-i: YV was found to share many of the characteristics with variables typically thought of as personality traits. As such, the validity of the instrument as a measure of emotional intelligence is reduced. However, that does not indicate that the instrument does not maintain practical use.

With regard to usage, one must consider that Bar-On's theory was developed after reviewing the literature concerning personality characteristics related to life success. Bar-On's model is purported to describe "emotional and social competence" (personal communication James Parker, 2000; Bar-On, 2000, p. 364), and "key components of effective emotional and social functioning that lead to psychological well being" (Bar-On, 2000, p. 364). Due to his search for characteristics leading to life success, his model appears to contain aspects of intelligent thought as well as personality characteristics. As such, it would probably be more accurate to consider Bar-On's model as well as the EQ-i: YV a description of emotional/social competence or ability to succeed as opposed to emotional intelligence. Possibly, the variable sought after by Bar-On (life success), is a combination of what Mayer et al (2000a) describe as emotional intelligence (ability model) and emotional/social competency as described by Bar-On. Such an outcome would explain the confounding of the emotional intelligence construct with personality characteristics and traits. Therefore, the EQ-i: YV may be better suited as a test of emotional/social competence than as a measure of emotional intelligence.

Used as a measure of emotional/social competence, the EQ-i: YV could be useful in identifying children and adolescents who lack adequate social skills. With the identification of these students, educators and parents alike would be provided the opportunity to enhance these individual's quality of life through social skills training, which could in turn assist the child in forging interpersonal relationships and increasing overall sense of well-being. As a result, an increased satisfaction with life could be achieved not only during childhood, but hopefully throughout the total life span.

APPENDIX A
HUMAN SUBJECTS COMMITTEE APPROVAL



Office of the Vice President
for Research
Tallahassee, Florida 32306-2763
(850) 644-8633 • FAX (850) 644-4392

APPROVAL MEMORANDUM
from the Human Subjects Committee

Date: March 27, 2002

From: David Quadagno, Chair *DQ/ph*

To: Celeste N. Davidson
P. O. Box 280
Bristol, FL 32321

Dept: Human Services and Studies

Re: Use of Human Subjects in Research

**Projects entitled: An Analysis of the Emotional Quotient Inventory: Youth
Version as a Measure of Emotional Intelligence in Children and Adolescents**

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Human Subjects Committee at its meeting on March 21, 2002. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by March 20, 2003 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Frances Prevatt
APPLICATION NO.02.081

APPENDIX B
CONSENT FORMS

INFORMED PARENTAL CONSENT FORM

I freely and voluntarily and without element of force or coercion, consent for my child to be a participant in the research project entitled "An Analysis of the Emotional Quotient Inventory: Youth Version as a Measure of Emotional Intelligence in Children and Adolescents."

This research is being conducted by Celeste N. Davidson, MS, who is a doctoral candidate in the Combined Program in Counseling and School Psychology at Florida State University. I understand the purpose of her research project is to better understand emotional intelligence as it relates to children and adolescents. I understand that if my child participates in this project, I will be asked general information about myself and my child as well as information relating to my child's emotionality and behavior. I understand that some questions are of a sensitive nature or may address issues of illegal behavior, and that all of my responses will be confidential to the extent allowed by law. I understand that I may choose NOT to answer any questions that make me feel uncomfortable.

I understand that I will be asked to fill out a paper and pencil questionnaire relating to my child's behavior in the home environment. The total time commitment would be approximately 15 to 20 minutes.

I understand that my child will be asked to fill out paper and pencil questionnaires as well as other psychoeducational assessment instruments. The total time commitment would be approximately 50 to 90 minutes. I also understand that the primary researcher may obtain psychoeducational assessment results administered to my child by the FSU Multidisciplinary Center, should my child happen to be a client at that facility. Should my child attend Liberty County School District, the primary researcher may obtain psychoeducational assessment results from district officials.

I understand that my participation and that of my child is totally voluntary, and I or my child may stop participation at any time, without penalty. All of my answers as well as all of my child's answers to the questions will be kept confidential and identified by a subject code number. After all data has been collected, the link between my child's name and subject code number will be destroyed. I understand that after this link is destroyed, it will be impossible for the researcher to identify my child's individual results. My child's name will not appear on any results. No individual responses will be reported and no individual data will be analyzed. Only group data will be analyzed, and only group findings will be reported.

I understand there is a possibility of a minimal level of risk involved should I agree for my child to participate in this study. I might experience anxiety when thinking about my child's emotionality or behavioral concerns. The primary researcher will make herself available to talk with me about any emotional discomfort I may experience while participating. I am also able to stop my participation at any time I wish. Should my child experience any anxiety or discomfort while participating in this project, the primary researcher or research assistant will be available to talk with him/her about any emotional discomforts. I understand that my child may stop participating in this study at any time should he/she decide to do so. If there are any questions that make me uncomfortable, I may choose not to answer such questions.

I understand that there will be benefits for participating in this project. First, my own awareness about my child's behavior or emotional functioning may be increased. Second, my child may gain insight into his/her own social-emotional functioning. Also, myself as well as my child will be providing mental health care and educational professionals with valuable insights into the social-emotional functioning of children and adolescents. This knowledge can assist them in providing mental health/educational services to children with social-emotional difficulties.

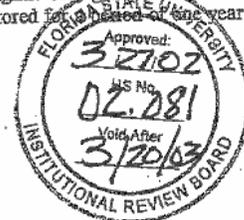
I understand that this consent may be withdrawn at any time without prejudice or penalty. I have been given the right to ask and have answered any inquiry concerning this study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Ms. Celeste Davidson, primary researcher, at (850) 643-5481, Dr. Frances Prevatt, Florida State University, School Psychology Program Coordinator at (850) 644-9445, or the Institutional Review Board at (850) 644-8633 for answers to questions about this research or my rights. Only group data will be analyzed and group results will be sent to me upon request. Research data will be stored for a period of one year and then destroyed.

I have read and understand this consent form.

(Parent/Guardian of Participant)

(Date)



Adolescent Assent (13-18 years old)

I freely and voluntarily and without being forced, consent (agree) to be a participant in the research project entitled "An Analysis of the Emotional Quotient Inventory: Youth Version as a Measure of Emotional Intelligence in Children and Adolescents."

This research is being conducted by Celeste N. Davidson, MS, who is a doctoral candidate in the Combined Program in Counseling and School Psychology at Florida State University. I understand her research project has to do with better understanding emotional intelligence as it relates to children and adolescents. I understand that if I participate in this project, I will be asked general information about myself as well as information relating to my intellectual functioning, emotionality and behavior. I understand that some questions may be considered embarrassing or may deal with things that students are not supposed to do, such as things that are illegal. I understand that my responses are confidential to the extent allowed by law. That is, I understand that my responses will be kept secret by the researcher unless it involves illegal activities, such as harming another person, that the researcher must report to law enforcement officials.

I understand that I will be asked to fill out paper and pencil questionnaires as well as other psychoeducational assessment instruments. The total time commitment would be approximately 50 to 90 minutes.

I understand that my participation is totally voluntary and I may stop participation at any time, without getting into trouble. All of my answers to the questions will be kept confidential (secret) and identified by a subject code number. After all data has been collected, the link between my name and my code number will be destroyed, making it impossible for anyone to view my individual results. I understand my parents will have access to any data collected in this study. My name will not appear on any of the results. No individual responses will be reported. Only group findings will be reported.

I understand there is a possibility of a minimal level of risk involved should I agree to participate in this study. I might experience anxiety (worry/stress) when thinking about my emotions or behavior. The primary researcher will make herself available to talk with me about any problems I may experience while participating. I am also able to stop my participation at any time I wish. If there are any questions that make me uncomfortable, I may choose not to answer such questions.

I understand that there will be benefits for participating in this project. First, I may learn more about my emotions or behavior. Also, I will be providing mental health care and educational professionals with valuable information about the way children and adolescents think, feel, and act. This knowledge can help them give better mental health/educational services to children and adolescents with behavior or emotional problems.

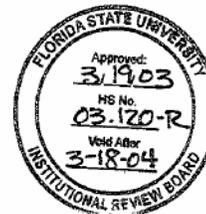
I understand that I can withdraw my consent at any time without getting into trouble or without anyone getting angry. I have been given the chance to ask and have answered any questions about this study. All of my questions have been answered to my satisfaction.

I understand that I may contact Ms. Celeste Davidson, primary researcher, at (850) 643-5481, Dr. Frances Prevatt, Florida State University, School Psychology Program Coordinator at (850) 644-9445, or the Institutional Review Board at (850) 644-8633 for answers to questions about this research or my rights. Only group results will be sent to my parent or guardian upon request. No individual data will be analyzed. All data will be stored for one year and then destroyed.

I have read and understand this consent form.

(Participant)

(Date)



(TUE) FEB 25 2003 21:00/ST. 20:58/NO. 6822221496 P 5

FROM

APPENDIX C
INSTRUMENTATION

Demographic Questionnaire

Instructions: Please answer the following questions to the best of your ability. Remember all information will remain **confidential**. The following information is required for statistical purposes ONLY. You do not have to answer any questions that make you uncomfortable.

Child Information

Child's Name: _____ Age: _____

Grade: _____

Race: (check one)

- _____ Caucasian/White
- _____ African-American/Black
- _____ Hispanic
- _____ Asian
- _____ Native American
- _____ Other

Has your child ever received Special Education services (ESE)? ___ yes ___ no

Does your child currently take medication? ___ yes ___ no

If yes, please list the medication: _____

What is the marital status of the child's biological parent's:

- _____ married _____ divorced _____ never married _____ separated
- _____ other (specify: _____)

Parent/Guardian Information (If information for mother/father is unknown, please list the information for the child's guardians)

Mother's Age: _____

Occupation: _____

Father's Age: _____

Occupation: _____

Highest Educational Level Completed:

- _____ Elementary/Middle School
- _____ Some High School
- _____ High School
- _____ Some College
- _____ College
- _____ Graduate School
- _____ Vocational/Technical School

Highest Educational Level Completed:

- _____ Elementary/Middle School
- _____ Some High School
- _____ High School
- _____ Some College
- _____ College
- _____ Graduate School
- _____ Vocational/Technical School

Total Household Income Level (check one):

- _____ less than \$10,000
- _____ \$10,000 to \$19,999
- _____ \$20,000 to \$34,999
- _____ \$35,000 to \$49,999
- _____ \$50,000 to \$64,999
- _____ \$65,000 to \$79,999
- _____ greater than \$80,000

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BIOGRAPHICAL SKETCH

Celeste N. Shuler
March 2004

EDUCATION

- 4/04 Doctor of Philosophy, Counseling Psychology and School Psychology
FLORIDA STATE UNIVERSITY – Tallahassee, Florida
- 5/99 Master of Science Degree in Counseling and Human Systems
FLORIDA STATE UNIVERSITY – Tallahassee, Florida
- 4/97 Bachelor of Arts Degree in Psychology
FLORIDA STATE UNIVERSITY – Tallahassee, Florida
- 12/94 Associate of Arts Degree
TALLAHASSEE COMMUNITY COLLEGE – Tallahassee, Florida
-

SUPERVISED EXPERIENCE

- 9/03-Present FLORIDA STATE HOSPITAL
Psychological Specialist
Dialectical Behavior Therapy Program (DBT)
- Duties: Group and individual counseling provided to individuals suffering from a variety of personality disorders, primarily Borderline Personality Disorder.
- 8/02-8/03 DOCTORAL PSYCHOLOGY INTERNSHIP
Florida State Hospital
- Duties: Provided group and individual counseling to inpatient clients with a variety of chronic psychiatric disorders in both civil and forensic settings; psychological testing; treatment planning; competency evaluations; treatment team meetings; and structured clinical interviews.

- 9/01-7/02 FLORIDA STATE HOSPITAL
Psychological Specialist
Unit 23-A
- Duties: Conducted detailed psychosocial interviews with residents; conducted competency evaluations and wrote psychological reports; psychological assessment; structured clinical interviews; conducted competency training groups; participated in treatment team.
- 8/01-5/02 SCHOOL PSYCHOLOGY INTERNSHIP
Florida State University Regional Multidisciplinary and Consulting Center
- Duties: Providing group and individual counseling to school children; completion of weekly progress notes and semester treatment summaries; consultation with teachers, parents, and administrators; design and implementation of behavior programs; participation in IEP meetings; provide feedback for psychological test results to parents and school personnel; psychoeducational assessments; integrated psychological reports.
- 1/01 – 5/01 PSYCHOLOGICAL PRACTICUM
Florida State Hospital
Unit 21-B
- Duties: Counseled inpatient residents in a forensic setting who possessed a variety of chronic mental illnesses; conducted structured clinical interviews to assess treatment progress; participated in treatment team meetings; assisted in conducting competency evaluations.
- 10/00 – 5/01 TALLAHASSEE MEMORIAL BEHAVIORAL HEALTH CENTER
- Duties: Conducted psychological assessments of children and adults in an acute care setting; wrote integrated psychological reports; assisted in making DSM-IV diagnoses for clients, when warranted.
- 6/00-6/01 PSYCHOMETRIC SUBCONTRACTOR FOR PRIVATE PRACTITIONER (Nancy M. Wonder, Ph. D.)

Duties: Conducted psychological evaluations of juvenile offenders; wrote psychological reports; conducted psychological and educational evaluations of disabled veterans wishing to return to the work force; participated in treatment planning and vocational counseling.

1/00-4/00

SUPERVISION OF MASTER'S LEVEL STUDENTS

Human Services Center, Florida State University

Duties: Supervised master's degree level counseling students; reviewed audio and video taped counseling sessions; consulted with practicum instructors.

8/99-4/00

PSYCHOLOGICAL PRACTICUM

University Career Center, Florida State University

Duties: Combined mental health counseling and career counseling with diverse client population; worked with individuals presenting with marital and family issues related to unemployment and career indecision; used assessments to facilitate career problem solving and decision making.

5/99-5/01

REGIONAL MULTIDISCIPLINARY EVALUATION AND CONSULTING CENTER, Tallahassee, Florida

Duties: Assessed child and adolescent clients with a variety of cognitive, academic, and social-emotional difficulties; wrote interpretive reports; assisted in developing academic and/or behavioral interventions; and provided feedback to parents and school personnel.

5/99-8/99

PSYCHOLOGICAL PRACTICUM

Wakulla Correctional Institution, Crawfordville, Florida

Duties: Provided individual therapy to male inmate population, often dealing with issues such as anger control, adjustment to incarceration, and depression; psychological assessments and corresponding reports.

1/99-4/99

PSYCHOLOGICAL PRACTICUM

Human Services Center, Tallahassee, Florida

Duties: Provided individual and family therapy to community members with various problems including depression, anxiety, adjustment disorders; observed other student counselors.

4/98-4/99

ADULT LEARNING AND EVALUATION CENTER
Florida State University

Duties: Assessed adults who presented with cognitive and academic difficulties in a post-secondary setting; psychoeducational evaluations and corresponding reports.

8/98-4/99

PSYCHOEDUCATIONAL ASSESSMENT PRACTICUM
Florida State University Regional Multidisciplinary Evaluation and Consulting Center

Duties: Received training on various psychoeducational interventions such as intelligence testing, achievement testing, pre-kindergarten assessment, cognitive processing assessment, special education placement, DSM-IV diagnosis, report writing, psychosocial interviewing techniques, consultation, multicultural issues, behavioral assessments and interventions, and assessment of emotional functioning.

TEACHING EXPERIENCE

8/00-12/00

ADJUNCT FACULTY MEMBER
Flagler College at Tallahassee Community College

Taught to sections of course titled “Educational Tests and Measures” to elementary education majors. Course involved topics such as introductory statistics, test development, and issues of reliability and validity.

RESEARCH EXPERIENCE

6/00-2/04

DOCTORAL DISSERTATION
“An Analysis of the Emotional Quotient Inventory: Youth Version as a Measure of Emotional Intelligence in Children and Adolescents”

Brief Description: examines the psychometric properties of the EQ-i: YV.

1/99-6/00

MASTERS THESIS EQUIVALENCY
“The Relationship Between WISC-III IQ Discrepancy Scores and Behavioral Characteristics of Clinic Referred Children”

Brief Description: study focused on comparing children who possessed Verbal IQ and Performance IQ deficits to ascertain whether any meaningful differences existed between groups.