Factors that Account for Children's Variability in Social Skills: Temperament and Emotional Intelligence

By

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Abstract

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The study of social skills in children has been a popular field of research for many decades. The popularity of this construct may be due, in part, to the importance of social skills. Investigators recognize social skills as an essential set of abilities that correlate with overall personal adjustment in both children and in adults (Agostin & Bain, 1997; Copeland, 2006; Dodge, Murphy, & Buschsbaum, 1984; Green, Forehand, Beck, & Vosk, 1980; Vinnick & Erickson, 1994). Some children learn to skillfully master social skills, whereas for others, their skills in interacting effectively with others are insufficient to achieve success in the social world.

Knowledge of an individual's differences may be important in understanding an individual's level of social skills. One form of an individual's difference is his/her temperament and another is his/her level of emotional intelligence (EI). Currently, there is no research examining the relationship among EI, social skills, and temperament in preschool-aged children. One reason for this paucity is that until recently there was no assessment measure for EI of young children. The purpose of the present study, therefore, was to determine what accounts for the variability in preschool aged children's social skills.

It was hypothesized that a child's level of social skills would be influenced by both his/her level of EI and their temperament. Parents of 94 preschool children, aged 4 years to 5 years 6 months participated in the study. Parents completed a demographic

questionnaire and gave their child's teacher permission to complete three rating scales, *Social Skills Rating Scale (SSRS), Temperament Assessment Battery for Children-Revised (TABC-R),* and the *Teacher/Parent Rating Scale for Emotional Intelligence (T/PRSEI).* Based on the data collected, all the proposed hypotheses in this study were confirmed.

Results of this study indicate that higher scores of EI were predictive of higher scores of social skills, $t(90) = 1.84$, $p = .07$. Although not significant at the customary $p < .05$ level, this positive relationship showed a trend toward significance. Scores on both temperament variables were also predictive of social skills. Specifically, there was a significant negative relationship between inhibition and social skills, $t(90) = -5.24$, $p < .001$. Thus, higher scores on the inhibition scale of the TABC-R predicted lower scores on the SSRS. Additionally, impulsivity and social skills scores were negatively related, $t(90) = -6.07$, $p < .001$. Therefore, high scores on the impulsivity scale of the TABC-R were predictive of lower scores on the SSRS.

Analyses were also conducted to investigate whether or not gender may be influencing EI. Results showed that when gender was entered into the regression analysis, the variance accounted for significantly increased, $t(89) = 4.77$, $p < .001$. In addition, when gender was added as a predictor in the multiple regression, the *t*-test assessing the contribution of EI revealed it as a stronger predictor of social skills, $t(89) = 2.87$, $p < .01$. Thus, when gender was controlled for, EI significantly predicted students' social skills.

Knowledge about what accounts for the variability in children's social skills may help School Psychologists to tailor interventions to assist the child in enhancing his/her social skills. Although a child's temperament is often stable across their lifespan and cannot be changed, skills that are deficits in the child's temperament traits can be taught and learned and in turn may help their level of social skills. Next, knowing a child's temperament will help professionals choose different strategies and interventions to work

on social skills. Finally, although there is little research on teaching EI skills, it is possible that teaching EI skills to children who have deficits in social skills would lead to an improvement in their social skills.

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CHAPTER I

Introduction

The study of social skills in children has been a popular field of research for many decades. James in 1890 noted the significance of social acceptance among youngsters in his book *The Principles of Psychology.* The popularity of this construct may be due, in part, to the importance of social skills. Elliott and Gresham (1987) have defined social skills as "socially acceptable learned behaviors that enable a person to interact effectively with others and to avoid socially unacceptable responses" (p. 292). Social skills comprise an array of abilities including: sharing, helping, initiating relationships, requesting help, and using manners.

Investigators recognize social skills as an essential set of abilities that correlate with overall personal adjustment in both children and in adults (Agostin & Bain, 1997; Copeland, 2006; Dodge, Murphy, & Buschsbaum, 1984; Green, Forehand, Beck, & Vosk, 1980; Vinnick & Erickson, 1994). Research has found that social skills allow individuals to develop positive peer relationships, communicate needs and emotions successfully, and use effective coping skills (Walker, Schwarz, Nippold, Irvin, et al., 1994). Copeland (2006) and Green et al. (1980) have found that individuals with positive social adjustment have higher academic achievement scores. Socially competent peers are better able to discriminate emotions in themselves and in others (Dodge et al., 1984). Agnosti and Bain (1997) reported that people who have higher levels of social skills are more likely to be promoted in school rather than be left behind. Lastly, Vinnick and Erickson (1994) reported that children with higher levels of social skills are less likely to have either internalizing or externalizing behavioral problems.

Some children learn to skillfully master social skills, whereas for others, their skills in interacting effectively with others are insufficient to achieve success in the social world. Research has found that children who have weak or lack social skills are more

likely to have a range of adjustment problems than children with age appropriate social skills. Copeland (2006) found that children who have social skill deficits are more likely to have behavior problems (engage in aggressive behavior and poor social adjustment) as well as learning difficulties. Copeland, Walker et al. (1994) also discussed the possible ramifications for children who are rated to have lower social skills. Walker et al. reported that these children are at risk for a cluster of negative developmental outcomes including low self esteem, juvenile delinquency, and academic underachievement.

Knowledge of an individual's differences may be important in understanding an individual's level of social skills. One form of an individual's difference is his/her temperament. Bates (1989b) combined many theories of temperament to provide a general definition of temperament. He stated that temperament is "biologically rooted individual differences in behavior tendencies that are present early in life and are relatively stable across various kinds of situations and over the course of time" (p. 4).

Thomas and Chess's (1968) theory of temperament laid the foundation for much of the research in the area of individual differences. They reported that temperamental profiles of individuals across a lifespan show specific individual behavioral characteristics. These individual differences, called temperament, play an important role in a person's development.

Another form of an individual's difference is his/her level of emotional intelligence. Mayer and Salovey (1997), leading researchers in this arena, define emotional intelligence as: "the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth" (p. 5). Emotional intelligence is becoming recognized as an essential set of abilities. Most researchers agree that emotionally intelligent people are able to accurately perceive, understand, and regulate their emotions (Mayer & Salovey, 1997; Goleman, 1995;

Scharfe, 2000).

Salovey and Mayer (1989-1990) proposed that emotional intelligence is linked to positive mental health. Individuals with high levels of emotional intelligence often can perceive emotions accurately and use complex strategies to regulate their emotions to advance towards important goals. Individuals who are low in or lack emotional intelligence, according to Salovey and Mayer, may experience problems in adjustment and life planning due to an inability to recognize emotions in themselves and others.

Research has also found that emotional intelligence may facilitate the acquisition of social skills in older children and adults. Schutte et al. (2001) found that individuals with higher scores for emotional intelligence had higher scores for social skills, empathic perspective taking, and self-monitoring; and displayed more cooperative responses toward partners. Salovey and Sluyter (1997) found that competence in emotional intelligence influenced the ability to respond appropriately to the social situation. Scharfe (2000) and Denham et al. (2003) reported that competence in the emotional world of children is associated with superior social skills, social competence, and acceptance by peers. There is, however, little research that looks at the influence of emotional intelligence on social skills in children who are in preschool.

Currently, there is no research examining the relationship among emotional intelligence, social skills, and temperament in preschool-aged children. One reason for this paucity of research is that there is no published assessment measure for emotional intelligence of young children. This study therefore used an emotional intelligence measure developed in an unpublished dissertation (Sullivan, 1999).

The purpose of the present study, therefore, was to determine the relationship among emotional intelligence, temperament, and social skills in preschool aged children. The investigation of the relationships among these three constructs can be very beneficial to educational professionals. As mentioned earlier, emotional intelligence and social

skills are important for success in school and various other settings (Robins & Rutter, 1990). Knowledge of the emotional intelligence-temperament-social skills relationship will also help parents and teachers understand the child's response to educational programming as well as help them understand the best way to shape social, emotional, and task-oriented activities for individual children. Finally, knowledge of a child's level of emotional intelligence, temperament, and social skills, and the relationships among these constructs, will help parents and professionals understand the risks to children for future emotional problems. Denham et al. (2003) noted that successful interaction with peers is a central predictor of later mental health and wellbeing. These researchers also indicated that individuals who can negotiate interacting with peers and regulate and manage their emotions are more likely to be successful and thrive in the social world (Denham et al., 2003).

In this study, teachers of preschool aged children completed The *Teacher/Parent Rating Scales of Emotional Intelligence* (T/PRSEI; Sullivan, 1999) to assess children's emotional intelligence, the *Temperament Assessment Battery for Children* (TABC-R; Martin & Bridger, 1999) to assess their temperamental traits (Inhibition, Negative Emotionality, Activity Level, and Lack of Task Persistence), and *The Social Skills Rating Scale* (SSRS; Gresham & Elliott, 1990) to assess their social skills. Ultimately, the objective of this study was to determine if temperamental traits assessed by the TABC-R and emotional intelligence scores assessed by T/PRSEI would predict the children's level of social skills measured by ratings on the SSRS.

CHAPTER II

Literature Review

This chapter provides a review of literature for the three constructs of interest in this dissertation: social skills, temperament, and emotional intelligence. The intent of this study is to determine the relationship among these three variables in preschool aged children. Understanding the relationship between these three constructs could provide insight into more effective interventions for building pro-social behaviors that could lead to better social adjustment for children. Information gained from this research can also help educators and parents understand the child's behavior better as well as develop more appropriate education and behavior plans for the classroom.

This chapter starts with a review of the construct of social skills. This section will include a brief overview of the definition of social skills and a discussion of the importance of the construct. An examination of social skills literature will follow.

Next, the construct temperament will be discussed. The study of this construct will be divided into the history, theories, and measurement of temperament. This segment concludes with Martin and Bridger's (1999) current theory of temperament and research that looks at the functional significance of temperament.

The last section will address emotional intelligence. This area of investigation has become popular with much prominence placed on defining the construct of emotional intelligence, its measurement, and the application to real life situations. The chapter also discusses the history of emotional intelligence and links it to research of psychologists who studied traditional intelligence and social intelligence. Finally, I will present the research that discusses emotional intelligence, temperament, and social skills. I will also offer the rationale and hypotheses for the present investigation.

Social Skills

The notion of social skills has been around for decades. In his book, *The*

Principles of Psychology, James (1890) noted the importance of social acceptance among youngsters. Since this time there have been many definitions of children's social skills. Elliot and Gresham (1987) noted that one can place these definitions into one of three definitional classifications: (1) peer acceptance, (2) behavioral, and (3) social validity.

According to Elliott and Gresham (1987), the peer acceptance definition of social skills involves the understanding that a child is socially skilled if he/she has peer acceptance. The major problem with this definition is that it does not operationalize what specific behaviors lead to a child being accepted by his or her peers.

The behavioral definition of social skills reports that socially skilled behaviors are behaviors that individuals demonstrate in specific situations where there is greatest probability of securing or maintaining reinforcement or decreasing the likelihood of punishment contingent on one's social behavior (Elliott & Gresham, 1987). This definition of social skills provides direct relevance for intervention strategies to remediate children's social skills deficits as it labels specific social behaviors, their controlling variables, and the environments in which children perform the behaviors. Elliott and Gresham reported that the downside to the behavioral definition of social skills is it does not indicate what social behaviors are socially significant.

The social validity definition of social skills is the most heuristic according to Elliott and Gresham (1987) and the one that this dissertation uses. It defines social skills as "socially acceptable learned behaviors that enable a person to interact effectively with others and to avoid socially unacceptable responses" (Gresham & Elliott, 1994, p. 292). Social skills comprise an array of abilities including: sharing, helping, initiating relationships, requesting help, and using manners. This comprehensive definition of social skills is a combination of both the peer acceptance and behavioral definitions. This definition provides specific behaviors that one can relate to important criteria for sufficient indexing of social functioning. Lastly, Elliott and Gresham indicated that this

definition has the advantage of specifying behaviors in which an individual is deficient, which is helpful for intervention designs.

Social skills research by Elliott and Busse (1991) found that there are clusters of social behaviors. They reported the following five clusters: (1) cooperation - helping others, sharing, and following rules; (2) assertion - initiating behaviors, asking for things, and responding to others requests; (3) responsibility - demonstration of care; (4) empathy - showing concern for the feelings of others; and (5) self-control - the ability to respond to corrective feedback or conflict appropriately.

An examination of the literature revealed that social skills correlated with overall adjustment. Green, Forehand, Beck, and Vosk (1980) investigated the relationship between achievement scores and social competence with 116 third grade students. They found that children who interacted positively with their peers, r (115) = .405, $p < .05$, and were liked by their peers, r (115) = .334, $p < .05$, had high academic achievement scores. Vinnick and Erickson (1994) discovered that with an increase in the level of a child's social skills, there is a decrease in the child's level of behavior problems. They investigated 159 third graders and 138 sixth graders by asking the subjects' mothers to report on their children's social skills, life events, and behavioral problems. The findings of this study showed that children with relatively better social skills were more competent socially, emotionally, and academically. These same children were also better able to deal with negative effects of stressful life occurrences than their less socially skilled peers, F (6,145) = 10.19, $p < .0001$.

Research by Agostin and Bain (1997) found that knowing a child's level of social skills helps predict promotion and retention in school. Participants for this study were 184 children who were kindergarten age (mean age = 76 months). The children completed a measure of academic achievement and their teachers completed a measure of social skills for each subject. The authors found significant positive correlations between several

social skills subscales and the measure of academic achievement (cooperation and language subtest r (183) = .29; cooperation and learning subtest r (183) = .20; and assertion and the learning subtest r (183) = .20, all at $p < .05$). Several subscales of the social skills measure (i.e., cooperation, F (1, 182) = 29.37; self- control, F (3, 180) = 24.13, both $p < .001$) best discriminated between which participants would be promoted or retained for the upcoming school year with a 67-70% accuracy. The higher the participants' social skills, the more likely they were to be promoted to a higher grade for the following year.

As noted by the research stated above, there appears to be a positive relationship between a child's level of social skills and his or her overall personal adjustment. Research with adult participants has also replicated these findings. Schutte et al. (2001) conducted a study that investigated the relationship between social skills and emotional intelligence. Schutte et al. had adults complete a measure of emotional intelligence and a measure of social skills. Results of this research indicated that adults who had higher scores on the measure of social skills had higher scores on the measure of emotional intelligence (r (76) = .41, $p < .0001$).

What research has not yet shown is what accounts for the wide range of variability in social skills in individuals. Thus, this dissertation investigated if the individual differences of temperament and/or emotional intelligence accounts for the variability in preschool aged children. Following is an examination of these two constructs.

Temperament

Throughout the years, many researchers have tried to understand how children's own tendencies affect the development of their personality. Behavioral tendencies of children have been termed "temperament". Bates (1989b) provided a general definition of temperament by combining the current theories of many researchers in the field. He

defined temperament as “biologically rooted individual differences in behavior tendencies that are present early in life and are relatively stable across various kinds of situations and over the course of time” (p. 4). The term temperament is often applied to behavioral qualities of emotion, attention, and activity.

Early history of temperament. The idea of temperament has been around many centuries and dates back to the Greeks and Romans (Bates, 1989b; Diamond, 1974; Goldsmith, et al., 1987; Strelau, 1998). Hippocrates, known as the father of medicine, explained states of health and sickness by using a theory of humors (Strelau, 1998). Galen expanded on Hippocrates’ theory and reported that there were nine different temperament types that were derived from mixtures or combinations of humors and their qualities (Strelau, 1998). Strelau reported that one of the major contributions of the Hippocrates-Galen theory of temperament was that it elucidated that physiological mechanisms can explain individual differences in behavior.

Jung, a psychoanalyst in the early 1900’s, developed a theory of personality that influenced modern day theories of temperament (Stelau, 1998). In his theory Jung reported that individuals have one of two types of attitudes: extraverted and introverted. In typically developing individuals one of these areas plays a leading role.

Many early popular theories of personality and temperament, including Allport (1937), Cattell (1965), and Eysenck (1970), incorporated Jung’s idea of extraversion and introversion. These early theories of temperament moved away from pure thought and philosophy and branched out to gain empirical information to support their theories. Allport (1937) believed that temperament is a major component of personality and is made up of traits. According to Allport:

> Temperament refers to the characteristic phenomena of an individual’s emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood, and all

> peculiarities of fluctuation and intensity in mood; these phenomena being regarded as dependent upon constitutional make-up, and therefore largely hereditary in origin. (p. 54)

H. J. Eysenck was the first scholar to empirically investigate temperament traits in terms of physiological constructs (Strelau, 1998). Eysenck (1990) characterized three "superfactors" of temperament that he called his PEN theory. The three dimensions of temperament that Eysenck referred to are psychoticism (P), extraversion (E), and neuroticism (N). He viewed the concept of temperament as synonymous with personality and used only one distinction between the two terms; temperament is the noncognitive feature of personality.

Modern day theories of temperament. Most modern day theories of temperament derive from the research by Thomas and Chess (1977). Thomas and Chess were pioneers in the field of measurement of children's individuality while looking at temperament variables. According to these researchers, personality and temperamental profiles of individuals across the lifespan show specific individual behavioral characteristics. These individual differences (temperament) in people play an important part in their development. Thomas and Chess used the term temperament to refer to the "how" of behavior and equated it to the term "behavioral style". Temperament must be looked at in its relationship to an individual's abilities and motives and external environmental stresses and opportunities (p. 10). "Temperament is influenced by environmental factors in its expression and even in its nature as development proceeds" (Chess & Thomas, 1996, p. 33).

Thomas and Chess (1977) indicated that temperament has three important boundaries (Goldsmith, 1987). First, although temperament interacts with many attributes (cognition, motivation, emotionality, and arousal), temperament is an independent psychological characteristic. Second, temperament must be looked at as different from

abilities, personality, and motivations. Last, temperament is dynamic and is a response to an external expectation. The investigation of temperament, therefore, takes place within the terms of the social context in which it occurs.

In the 1950's Thomas and Chess (1977) conducted the New York Longitudinal Study (NYLS) to explore individual differences in children while they developed. The participants were 141 children who began the research study at 2-3 months of age. Thomas and Chess followed these participants for over 6 years, collecting information on them through interviews (parent and teacher), observations (school and behavioral), and intelligence tests.

From the data collected from the first 22 participants, Thomas and Chess (1977) distinguished nine categories of temperament: activity level, rhythmicity, approach or withdrawal, adaptability, threshold of responsiveness, intensity of reaction, quality of mood, distractibility, and attention span and persistence. During the study, Thomas and Chess discovered that frequently the behavioral characteristics of the children showed one or another of three temperament constellations. The temperament constellations included: easy, difficult, and slow to warm up. The "easy child" demonstrated regularity, positive approach, high adaptability, and mild to moderate intense mood that is often positive. The "difficult child" showed irregularity in biological function, negative withdrawal responses, nonadaptability to change, and intense mood expressions that are frequently negative. Last, the "slow to warm up child" displayed a combination of negative responses of mild intensity to new stimuli with slow adaptability after repeated contact, mild intensity of reactions, and less tendency to show irregularity of biological functions. Not all individuals fit into one of these temperamental categories. A report by Chess and Thomas in 1996 revealed that only 65% of the participants in their study fit into one of the three temperament constellations.

Other researchers, Sanson, Smart, Prior, Oberklaid, and Pedlow (1994),

reexamined Thomas and Chess's (1977) temperamental dimensions through the Australian Temperament Project (ATP). This was a longitudinal study that investigated the constructs temperament, adjustment, and development in children. Sanson et al.'s intent for this study was to compare Thomas and Chess's nine categories of temperament with factor analytically derived temperament structures. Sanson et al. followed 2,443 infants longitudinally from birth to 8 years of age. Seventy-two percent of these children were enrolled in the study 8 years later. Results found that Thomas and Chess's categories of temperament were not independent as they were once believed to be. There were some intercorrelations between the temperament categories. Sanson et al. reported that a six category structure of temperament (inflexibility, persistence, sociability, rhythmicity, activity/mood, and threshold) was more appropriate than Thomas and Chess's nine category structure.

Additional researchers like Caspi and Silva (1995) also investigated the original nine categories of Thomas and Chess's (1977) theory of temperament. Like Sanson et al. (1994), Caspi and Silva also found that that temperament could better be broken down into a different factor structure than that of Thomas and Chess. In the longitudinal Dunedin Multidisciplinary Health and Development Study, Caspi and Silva looked at 22 behavioral characteristics of temperament. They found three stable factors of temperament: lack of control, approach, and sluggishness. From their data they also determined groups of children who presented with comparable configurations of the three factors. Caspi and Silva noted that five types of temperaments emerged from their research: undercontrolled, inhibited, reserved, confident, and well adjusted.

As there is no clear consensus concerning the concept, definition, and factors of temperament, most researchers build on Thomas and Chess's original formulations. Current researchers interested in the domain of temperament have instead fostered a new understanding of the construct. For instance, Buss and Plomin (1984) developed a theory

of temperament called EAS, which looks at temperament from a perspective of personality psychologists. EAS refers to three traits of temperament: emotionality, activity, and sociability. Buss and Plomin (1975, 1984) believe that temperament traits are genetic in origin, inherited, and appear in infancy. Another researcher, Rothbart (1989), created a developmental theory of temperament that addresses how temperament influences emotional behaviors. This researcher looked at reactivity and self regulation as the two main components of temperament. Rothbart's temperament variables are similar to Thomas and Chess's (1977) and Buss and Plomin's (1975) temperament dimensions; however, Rothbart believes that individual differences in temperament go beyond "behavioral style".

Whether the theory of temperament was constructed long ago or more recently, there are several common features among many of the temperament theories (Strelau, 1998). First, temperament is made up of behavioral characteristics on which individuals differ. Second, the concept of temperament is reasonably stable and has cross-situational consistency. Third, the basis of temperament is biological. Last, formal characteristics of human functioning make up temperament. Examples of some characteristics are: energy, strength, tempo, intensity, mobility, and speed.

Martin and Bridger's theory of temperament. Although there are similarities among the theories of temperament, I chose Martin and Bridger's (1999) theory for this dissertation because it takes into account many important recent theoretical and empirical developments in the area of temperament research. A discussion of their theory follows.

One can find several assumptions about the nature of temperament in both the ancient and modern theories of temperament that form the basis of Martin and Bridger's (1999) theory. First, individual differences in emotionality are of utmost importance in defining the temperamental characteristics of an individual. Second, activity level, attention span, and social inhibition are manifestations of the emotional reactivity of the

child (Thomas & Chess, 1977). Third, since one can observe emotional, attentional, and motoric characteristics early in the life span, theorists consider them to be temperamental. Next, temperamental characteristics are believed to be relatively stable across the course of an individual's life. Martin and Bridger also assume that individuals who are more extreme on a given trait are more stable on that characteristic. Genetic factors, intrauterine environment, and the social environment following birth influence temperamental differences. Last, temperamental behaviors of individuals in early childhood form a basis upon which more complex behaviors are built.

To address the recent empirical and theoretical additions to the theory of temperament, Martin and Bridger's (1999) theory takes into account the research of Jeffery Gray (1972, 1991). Martin and Bridger (1999) incorporated Gray's research into their theory by assuming that some individuals are sensitive to rewarding aspects of their environment and others are sensitive to the punitive aspects of their environment. They classified these sensitivities into two major temperamental traits: Inhibition/Fearfulness (individuals who are more responsive to cues of punishment) and Impulsivity (individuals who are more susceptible to cues of reward). They defined Inhibition as a child's tendency to become emotionally upset or withdrawn in an unknown social situation. Negative emotionality (intensity and persistence of negative emotions), lack of persistence (looks at attention and a child's ability to continue a difficult task), and activity level (tendency for children to engage in energetic physical motor activity) indicated Impulsivity. In Martin and Bridger's theory of temperament, Inhibition is unrelated to Impulsivity and Inhibition is not the opposite of Impulsivity (Gray, 1972).

Martin and Bridger created a simple, concise, valid, and reliable way to measure temperament in preschool children that is based on their current theory of temperament. The Method section presents and discusses research using the *Temperament Assessment Battery for Children-Revised* (TABC-R; Martin & Bridger, 1999) as this dissertation will

use the TABC-R. This research provides support for Martin and Bridger's theory.

Functional significance of temperament. Research by current theorists indicates that the functional significance of temperament in children is largely expressed in social interactions with caregivers and in behavior under all types of school demands. There is also a large amount of findings in the area of adult temperament that could be helpful for making predictions about temperament styles and later success in life. For adults, research shows that temperament impacts peer interactions (and important part of social skills), partner relationships, and career and leisure time activity (Caspi, 2000; Newman et al., 1997).

Bates (1989a) reported longitudinal research that showed mother-rated difficult temperament (frequent and severe exhibitions of negative emotion) in the first two years predicted later behavior problems in children at the ages of 3-6. Controlling for potentially confounding variables of observed mother-child interaction and mother personality, Bates reported that mother-rated difficult children were more likely to exhibit both internalizing and externalizing behavior problems later in their childhood.

Temperament is also an important determinant of young children's academic achievement (Martin, Drew, Gaddis, & Moseley, 1988; McGee, Prior, Williams, Smart, & Sanson, 2002; Newman, Noel, Chen, & Matsopoulos, 1998). Children with higher activity, greater distractibility, and lower persistence ratings frequently show lower academic achievement (Martin, 1989). Martin et al. (1988) investigated the relationship between temperament and academic achievement. In a study that was designed to examine the utility of the Temperament Assessment Battery (TAB) - Teacher Form, they found that temperament was useful in predicting academic achievement over time (1 to 4 year time intervals). Two hundred forty three children who ranged in age from 46 to 94 months completed several achievement tests (Stanford, Peabody, and/or Metropolitan) while their teachers completed the TAB. The researchers found that when IQ was

controlled, temperament assessed in kindergarten predicted academic performance assessed in first grade. Several temperament dimensions (e.g., distractibility, activity level, and persistence) consistently predicted academic success across standardized achievement tests.

McGee and colleagues (2002) used data collected from both the Dunedin Study (described in detail later in this section) and the Australian Temperament Project to investigate if there was a relationship between early measures of temperament and later performance in school. They discovered a linear relationship between high activity level and later adverse school outcomes. McGee et al. reported that children seen as hyperactive were more likely to exhibit poor attention and reading levels in adolescence.

To investigate how temperament affects other areas of an individual's life, Silva (1990) described a large longitudinal research study conducted in New Zealand called the Dunedin Multidisciplinary Health and Development Study. This study used a large sample of children and observed their health, development, and behavior. Perinatal data were collected from 1,037 infants who were born between the years of 1972 and 1973. Researchers assessed this sample every 2 years since the participants were 3 years of age until they were age 21. Participants and their parents completed several diverse batteries of measures over the years. Data were collected for 991 participants at the age of 5; 954 participants at the age of 7; 955 participants at the age of 9; at the age of 11, 925 participants participated; 850 participants were obtained at the age of 13; and 976 adolescents were participants at the age of 15. Demographic information on this sample showed that over the years, the participant sample remained representative of the general population in the area of socioeconomic status and IQ. From this longitudinal study, many studies of temperament emerged (Caspi, 2000; Caspi, Henry, McGee, Moffitt, & Silva, 1995; Caspi & Silva, 1995; Newman, Caspi, Moffitt, & Silva, 1997). Most provided evidence that temperament can predict future problems.

Caspi and Silva (1995) took a sample of 800 participants from the Dunedin Multidisciplinary Health and Development Study and investigated if a child's temperament measured at age 3 related to his or her personality and behavior traits at age18. To assess the sample's behavior, the researchers used a set of behavior rating scales. Different examiners rated each participant's behavior on four different occasions. Caspi and Silva then used cluster analytic methods to group each participant into one of three behavior styles: Lack of Control, Approach, and Sluggishness. When the participants were 18, they completed the Multidimensional Personality Questionnaire as a self report measure of their personality. Results showed that children observed and labeled as undercontrolled at age 3 were more likely to rated themselves as impulsive, aggressive, seeking danger, and having difficulty with interpersonal relationships at age 18. Children, who were inhibited at age 3, scored low on measures of impulsivity, aggression, danger seeking, and social potency at age 18. Last, children who were well adjusted 3 year olds exhibited normative behavior at the age of 18.

Caspi (2000) also collected information regarding the Dunedin study participants' personal relationships, careers, mental illness, social networks, and criminal activity at age 21. Over 97% of the individuals (n = 961) in the original Dunedin study participated in this assessment battery at age 21. Children who were labeled as undercontrolled in previous Dunedin research were more likely to be impulsive, antisocial, and unreliable at age 21. These individuals also had employment difficulties, trouble with social relationships, criminal records, and reported alcohol dependence. Caspi reported that individuals who were previously categorized as inhibited were more likely to lack assertiveness skills, have internalizing mental problems, and report less social support. Last, individuals labeled as well adjusted children tended to still be well-adjusted adults. This research again supports the idea that temperament is predictive of future behavior.

Another study using the Dunedin cohort (Newman et al., 1997) also provided

evidence that temperament can be predictive of future problems. Newman et al. took the same 961, 21-year-old participants and investigated if there were lasting influences of early temperament measured at age 3 on their current interpersonal functioning. The researchers assessed interpersonal functioning by taking self-reports from the participants and by using informant reports of adjustment and conflict in four different social situations. Results showed that children who were previously labeled at the age of 3 as well adjusted, reserved, or confident were much more likely to fall within the normative range of interpersonal behavior. Children who were undercontrolled or inhibited early on were more likely to demonstrate problems and conflict within the interpersonal realm at age 21. These participants were also more likely to be seen as exhibiting more weaknesses rather than strengths in their character and personality.

Relationship between temperament and social skills in children. There is literature that reports direct linear effects of temperament styles on social competence and dimensions of social behavior. Farver and Bransletter (1994) investigated individual differences in preschoolers' prosocial behaviors with their peers. They recorded preschoolers (n = 52, 36 to 56 months of age) responses to their crying peers as well as conducted observations of the children's social interactions with their peers. The participants' teachers completed a measure of social competence and each parent filled out a temperament rating scale. Results of Farver and Bransletter's research found that children who were rated as having an easy temperament style were more likely to exhibit prosocial peer responses than children who were labeled as slow to warm up or difficult (r (51) = .52, p < .001). The researchers also discovered that preschoolers with an easy temperament style were more likely to exhibit friendly and positive peer interactions than those with other temperament styles.

A study by Billman and McDevitt (1980) also investigated the relationship between individual differences and peer interaction in preschool aged children. In this

study, both the teacher and parents of 78 children (ranging in age from 34-64 months) completed temperament rating scales. Billman and McDevitt recorded and rated observations of the participants' peer interactions. Results of this study did not show that children with different temperament styles differed in the amount of social overtures they exhibited. It did, however, show an association between temperament characteristics and problematic behaviors. Children whom parents and teachers labeled as difficult were much more likely than children labeled as easy to engage in hitting, r (77) = .23, $p < .05$; jumping, r (77)= .19, $p < .05$); wrestling r (77)= .18, $p < .06$; and pushing r (77) = .19, $p < .05$; all which would be labeled as less prosocial behaviors. Easy children were more likely to refrain from aggressive and rough and tumble play.

As noted above in the research reviewed, studies have shown that there is a relationship between temperament and interpersonal relationships and interpersonal behavior (Billman & McDevitt, 1980; Caspi & Silvia, 1995; Farver & Bransletter, 1994; Newman et al., 1997). This suggests that there may be an association between temperament and social skills. Research has not yet indicated if temperament accounts for the variability in social skills in preschoolers. Another individual difference variable to investigate its effect on social skills is emotional intelligence.

Emotional Intelligence

History of emotional intelligence. For many decades the study of intelligence has looked at human intelligence as a limited set of cognitive and mental skills. Goddard, a researcher in the early 1900's, defined intelligence as a unitary function (Sattler, 1992). Binet, developer of one of the first intelligence tests, reported that intelligence was "judgement, otherwise called good sense, practical sense, initiative, the faculty of adapting one's self to circumstances. To judge well, to comprehend well, to reason well" (Sattler, 1992, p. 45). Wechsler defined intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his

environment" (Sattler, 1992, p. 45). According to Sattler, most early definitions of intelligence focused on investigating higher mental skills as opposed to elementary sensory functions. These explanations of intelligence tended to highlight the skills to adapt to one's environment, ability to learn, or the capacity to engage in abstract thinking.

Several theorists (Gardner, 1983; Goldman, 1995; Salovey & Mayer, 1989-1990) have suggested that this narrow restricted view of intelligence does not include imperative adaptive processes served by other psychological features accountable for our success. Modern views of intelligence indicate that intelligence is a more global concept than it was previously believed to be. Salovey and Mayer (1989-1990), in an attempt to expand traditional views of intelligence, investigated the role played by emotion in adaptive responding to environmental demands. From this research Salovey and Mayer coined the term emotional intelligence.

Social intelligence. Emotional intelligence has its historical roots in the area of social intelligence. According to Mayer and Salovey (1997), research in the 1950's supported that intelligence could be divided into three subgroups. The first subgroup consisted of verbal intelligence that could be measured by looking at vocabulary, logical thinking, and verbal fluency. Visual-spatial intelligence was the second subgroup of intelligence and included measures of recognizing and building patterns and assembling objects. The third subgroup included social intelligence that involved looking at people's social skills and people's abilities to relate to others. The subgroup of social intelligence, however, was not new. In 1920, Thorndike defined social intelligence as "the ability to understand and manage men and women, boys and girls; to act wisely in human relations" (p. 228). Thorndike distinguished social intelligence from other forms of intelligence by reporting that social intelligence is "the ability to perceive one's own and others' internal states, motives, and behaviors, and to act toward them optimally on the basis of that information" (Salovey & Mayer, 1990, p. 187).

Zirkel (2000) indicated that the central core of the social intelligence theory is that individuals are beings who think and reflect. Individuals' behaviors can be understood, according to Zirkel, by investigating how they actively participate in their social environment and how they pursue preferred results in the important areas of their lives. The autonomy of social intelligence that sets it apart from the other subgroups of intelligence is not always empirically demonstrable. One reason for this is that social intelligence is so broadly defined and difficult to measure (Salovey & Mayer, 1989-1990). Despite these problems, research in the field of social intelligence continues to help shape the field of emotional intelligence. Salovey and Mayer (1989-1990) reported that social life tasks, investigated by the researchers of social intelligence, are full of emotional information that people must process and that individuals may differ in the skill with which they do so (emotional intelligence).

Personal intelligence. Gardner's (1983) theory of multiple intelligences also provides a foundation for emotional intelligence. The theory of multiple intelligence reports the existence of independent intellectual competencies, one competency being personal intelligence. According to Gardner, these intellectual competencies are building blocks and they interact to produce a varied mixture of human abilities. Salovey and Mayer (1989-1990) view social intelligence as a part of Gardner's personal intelligence and therefore see emotional intelligence as a subset of personal intelligence.

According to Gardner (1983), personal intelligence involves knowledge of self and appraisal of others. Some skills involved in personal intelligence include the ability to distinguish other's feelings, intentions, temperaments, and motivations and the capability to identify a range of moods in oneself.

Unfortunately, the theory of multiple intelligence is just that, a theory, as there is little empirical support for Gardner's ideas. Salovey and Mayer (1989-1990) still regard Gardner's theory as appealing. Salovey and Mayer's theory of emotional intelligence

includes Gardner's idea that this different form of intelligence includes an individual's recognition and use of both his/her own and other's emotional states to explain problems and control behavior.

Construct of emotional intelligence. Both the study of social intelligence and the theory of personal intelligence have been prominent in the formulation of the construct of emotional intelligence. Mayer and Salovey (1997) indicated that knowledge of the concept of emotional intelligence includes understanding its two terms: emotions and intelligence. Emotions can be defined as "internal experiences that reflect a person's relationships" (Salovey & Sluyter, 1997, p. 2). Mayer and Salovey (1997) reported that intelligence is often thought of as how well the cognitive sphere (memory, reasoning, judgment, and abstract thinking) functions.

Explanations of the construct of emotional intelligence should connect emotions with intelligence. Using this above information, Mayer and Salovey (1997) defined emotional intelligence as the "ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth" (p. 5).

Investigators have used the term emotional intelligence in a variety of ways (Mayer, Salovey, & Caruso, 2000). Zeidner et al. (2003) believed it is possible to categorize emotional intelligence definitions and theories into two basic groups: mixed models and ability models. Goleman (1995) viewed emotional intelligence as involving both cognitive abilities and aspects of personality and motivation (mixed model). Mayer and Salovey (1997) viewed emotional intelligence solely as a mental ability (ability model).

In the mixed model, emotional intelligence consists of both cognitive skills and aspects of personality and motivation that facilitate application of abilities for handling

emotion in real world settings. Goleman's book, *Emotional Intelligence* (1995), refers to emotional intelligence as the master aptitude that includes many personality abilities. According to Goleman, emotional intelligence interacts with all other abilities and can either assist or impede them.

Goleman's (1998) theory of emotional intelligence includes five essential dimensions: (1) self awareness, (2) self-regulation, (3) motivation, (4) empathy, and (5) social skills. Knowing emotions and self awareness are the skills to comprehend a feeling when it occurs within the self. Managing emotions involves self regulation that is the ability to control emotions appropriately. Recognizing emotions in others includes the skill to understand and recognize the social signals in others. Last, social skills involve handling relationships with others.

In contrast to the mixed model, the ability model presents emotional intelligence solely as a mental skill. Here emotional intelligence is an intelligence that processes and profits from emotions. The leading researchers in the belief that emotional intelligence is a mental ability are Salovey and Mayer (1989-1990). After a decade of research, Mayer and Salovey (1997) were able to report evidence to indicate that emotional intelligence is distinct from other types of intelligence and parts of personality. They summarized this evidence in a recent article (Mayer, Salovey, & Caruso, 2008) and recommended the continued study of emotional intelligence as an ability rather than a collection of personality traits.

Many researchers have criticized the mixed model (Davies, Stankov, & Roberts, 1998; Ziedner, 2003). The major criticism is that this model of emotional intelligence tends to largely overlap with existing personality theories. Critics report that Goleman's theory is not measuring a new idea, just revamping a collection of existing constructs. Since the ability model of Mayer and Salovey (1997) is one of the most scientifically rigorous models of emotional intelligence (Mayer et al., 2008), I will describe it in detail

and use this model in the dissertation.

Salovey and Mayer's model of emotional intelligence. Initially, Salovey and Mayer (1989-1990) defined emotional intelligence by the abilities involved in it. They postulated that emotional intelligence consisted primarily of three adaptive abilities: appraisal and expression of emotion (in self and in others), regulation of emotion, and utilization of emotion in solving problems. In 1993, Mayer and Salovey discussed the basic fundamentals involved in emotional intelligence. They suggested three elements that underlie this construct: (1) emotionality itself, (2) facilitation and inhibition of emotional information flow, and (3) specialized neural mechanisms.

In 1997, Mayer and Salovey again revised their model of emotional intelligence and gave more emphasis to the cognitive components of emotional intelligence (thinking about feelings). Their new definition of emotional intelligence supports the idea that emotion makes thinking more intelligent, and individuals think intelligently about emotions. Mayer and Salovey's expanded conceptualization of emotional intelligence breaks emotional intelligence into four branches/levels. The branches are arranged from more rudimentary psychological processes to higher, more psychologically complex and integrated processes. The authors presume that these branches are developmental in nature. They also believe that within each branch there is a developmental progression of skills (Mayer, Salovey, & Caruso, 2004b). Below is a brief overview of each branch and research investigating the branch.

The first branch of Mayer and Salovey's (1997) model, "Perception, Appraisal, and Expression of Emotion", examines the accuracy with which an individual can identify, appraise, and express emotions and emotional content in himself or herself and in others. As the first branch of emotional intelligence to develop, Mayer (2001) reported that an "emotional perception system" is likely to be hard wired through evolution. According to Mayer and Salovey, emotional intelligence cannot start without the capacity

to perceive and express emotions. Perception of emotions involves several steps: registering the emotion, attending to the feelings, and deciphering the message.

Mayer, DiPaolo, and Salovey (1990) conducted the initial empirical research on emotional intelligence using 139 undergraduate college students who ranged in age from 17 to 63 years old. They investigated the first branch of emotional intelligence and looked at it across a variety of stimuli (colors, faces, and designs) to see how the relationship between individuals' abilities in perception and empathy explained the human capacity to identify and communicate feelings. Mayer et al. constructed questionnaires (reproductions of faces, color swatches, and abstract designs) and included an empathy scale and several personality inventories in their investigation. They obtained three scores from the information the participants gave: consensual accuracy, amount, and range of emotion perceived. They compared these scores with scores assessing other aspects of emotional intelligence, including empathy. Results indicated that participants who were able to perceive emotional information across a variety of novel stimuli expressed a higher level of empathy. This research helps support the idea that an individual must accurately perceive feelings in others in order to demonstrate empathy (a feeling). This study was also the first research to show that emotional intelligence includes abilities that can be measured through perceptual tasks.

"Emotion's Facilitation of Thinking", the second branch, describes how emotions and emotional events facilitate and contribute to cognitions and performance. Mayer, Salovey, and Caruso (2000) reported that feelings enter the cognitive system in two ways, as cognized feelings and altered cognitions. Emotions assist the cognitive system in several ways: (a) emotions may provide prioritizations of problems by directing attention, (b) emotions may aid intelligence and problem solving through the act of mood shifting, (c) emotions may change individual's perspectives and allow multiple points of view, (d) emotions may represent implicit information about earlier experiences, and (e) emotions

may aid judgment and memory (Mayer, 2001a).

Palfai and Salovey (1993) conducted research that provides evidence that specific moods enhance specific forms of mental processing. They hypothesized that each mood change can reset the cognitive system. The researchers asked 72 undergraduate college students to watch two videos designed to induce one of three moods (elated, neutral, or depressed), and then the undergraduates had to perform a reasoning task that involved either a deduction or induction task. Palfai and Salovey found some support, although not significant results, for their hypothesis that different forms of reasoning may be facilitated by different kinds of moods. Participants' response times provided partial support for the hypothesis that participants experiencing a depressed mood would demonstrate impoverished performance relative to the elated or neutral conditions on the inductive reasoning task but enhanced performance on the deductive reasoning task. Next, participants who were in an elated mood were more likely to have difficulty performing the deductive reasoning task but were better able to perform on the inductive reasoning task. Overall, the researchers found that shifts in judgment enhanced cognitive functioning by increasing motivational direction.

The third branch, "Understanding and Analyzing Emotions; Employing Emotional Knowledge", includes labeling emotions and understanding the antecedents and consequences of emotions. Mayer (2001a) reported that in order to be successful at understanding and analyzing emotions you must be able to label emotions and distinguish that there are groups of associated emotional terms. Mayer et al. (2000) reported that an individual who is successful at understanding and analyzing feelings is able to comprehend the fundamental truths of human nature and the how of relationships between others. Currently there is no research to takes into account this branch.

Last, "Reflective Regulation of Emotions to Promote Emotional and Intellectual Growth" concerns the conscious regulation and management of emotions in the self and

in others. This branch appears most important for social interaction because it influences expression of feelings and behaviors directly. Here an individual who can manage his/her emotions is able to realize that it is better to express rather than repress emotions, regulate feelings, and work with the emotions of others (Mayer et al., 2000). According to Mayer (2001a), an individual who optimally manages his or her emotions must first be open to emotion and then use the information gained from the first three branches of emotional intelligence (knowledge gained from perception, integration, and understanding). Last, the individual must also be able to reflectively attach to emotion depending on the emotions utility.

Several research studies have investigated the fourth branch of the Mayer and Salovey (1997) model of emotional intelligence. Eisenberg et al. (1994) looked at the relationship of emotionality, regulation, and empathy related responding. The participants were 164 undergraduate college students, ranging in age from 17-35 years old. A multi-method approach that included self-reports, and measures of facial and heart rate responses assessed vicarious situational responding. Reports of the participants and their friends provided information about dispositional emotional responding. Eisenberg et al. found that emotionality and regulation correlated with socially relevant behavioral and psychological outcomes in a way that supported Mayer and Salovey's idea that mastering the skills of this fourth branch is most important for positive social outcomes. Results of this study also indicated that individual differences in emotionality and regulation were present in sympathy, empathy, distress, and perspective taking. Eisenberg et al. reported that participants who were more prone to negative feelings were more susceptible to vicarious reactions.

Lopes, Salovey, Cote, Beers, and Petty (2004) also looked at how individuals regulate their emotions and how regulation affects stress, well-being, and interpersonal relations. The researchers investigated 76 junior and senior undergraduate college

students and asked them to complete an emotional intelligence test to assess emotional regulation abilities and used self-report and peer nomination scales to evaluate quality of social interaction skills. Lopes et al. found that participants who scored high on emotion regulation skills were likely to see themselves as more prosocial than their peers, and they were also viewed more favorably by their friends. Emotional regulation abilities were significantly associated with positive peer nomination and reciprocal friendship votes. In the discussion section, Lopes et al. suggested that education in emotion regulation skills may help individuals interact with their peers more effectively. These results again support Mayer and Salovey's report that mastery in skills of the fourth branch is important for positive social outcomes.

Although Mayer and Salovey's (1997) four branch model is one of the most empirically supported theories of emotional intelligence, there is still some controversy over whether or not emotional intelligence is a traditional intelligence. Mayer, Salovey, and Caruso (2004b) reported that emotional intelligence meets three conditions that suggest that it is a form of traditional intelligence. First, emotional intelligence is measurable by test items that have a correct answer. Next, emotional intelligence correlates with other forms of traditional intelligence. Last, emotional intelligence is developmental and progresses with age. The developmental nature of emotional intelligence is important to this dissertation and will be described in detail below.

Developmental nature of emotional intelligence. Research shows that emotional intelligence begins to develop from infancy. Scharfe (2000) indicated that an important developmental task for the young is learning how to correctly communicate, distinguish, and understand emotional expressions. Scharfe reported that infants and young children learn how to do these tasks through interactions with their parents, siblings, and peers.

Studies have shown that infants can express some levels of emotional intelligence. Malatesta, Culever, Tesman, and Shepard (1989) conducted a comprehensive

examination of the development of emotional expression during the first two years of life with 58 infants. They videotaped mother-infant dyads at four different periods of their lives. The researchers videotaped both play and separation-reunion sessions. They reported that young infants (two-and-a-half months of age) displayed an extensive array of facial expressions. Field, Woodson, Greenberg, and Cohen (1982) showed that some infants can distinguish emotional facial expressions, imitate expressions, and respond to their parents' expressions. Their participants were 74 neonates (average age of 36 hours) who discriminated among three facial expressions posed by a live model. The researchers measured discrimination by looking at the infants visual fixations. Field et al. also demonstrated that young infants can understand simple facial emotions. According to Field et al's research, this understanding develops in a sequence; first an understanding of happiness and sadness develops, then an understanding of anger and surprise follows. Malatesta et al. (1989) found that infants' regulation of emotions is very basic (e.g., gaze aversion) and does not become sophisticated until the early childhood years.

As the child develops physically, linguistically, behaviorally, and cognitively, often so does the child's emotional intelligence (Denham, Zoller, & Couchoud, 1994). In a paper, Mayer (2001b) suggests that there is a temporal progression to the development of emotional intelligence as suggested by developmental evidence. A key period for emotional development occurs during the ages of 4-8 (Berk, 1994). Here growth is seen in a child's language, empathic responding, and in both behavioral and cognitive strategies for employing emotional self-regulation. Research shows that during this time period, a child's understanding of the "causes, consequences, and behavioral signs of emotion improves in accuracy and complexity" (Berk, 1994, p. 406).

A study conducted by Denham, Zoller, and Couchoud (1994) supported these above developmental ideas by finding that as children age they demonstrate greater emotional understanding. In a longitudinal study that took place over 15 months, 47

preschoolers (mean age of 41 months) who attended a laboratory preschool had several areas of their emotional intelligence assessed. During the first year of the study Denham et al. assessed the preschoolers' emotional labeling abilities both verbally and nonverbally. These same participants had their understanding of emotions measured during the second year. Denham et al. found that children's ages correlated significantly and positively with their scores on emotional situation scenarios, r (46) = .29, $p < .05$, and emotional understanding, r (46) = .42, $p < .05$.

Mayer, Caruso, and Salovey (1999) explored the developmental nature of emotional intelligence. They studied 229 adolescents who ranged in age from 12 to 16 years as well as 503 adults who ranged in age from 21 to 59 years. The participants completed the *Multifactor Emotional Intelligence Scale* (MEIS; Mayer, Salovey, & Caruso, 1999), a vocabulary test, and an empathy scale. The overall emotional intelligence score for the adult participants was higher than the score for adolescent participants. Mayer et al. concluded that emotional intelligence is developmental and adults often have a higher level of emotional intelligence than do adolescents.

Importance of the study of emotional intelligence. When emotional intelligence has been measured as an ability, it has been positively related to many social and behavioral benefits (Mayer, Salovey, & Caruso, 2004b, 2008). Evidence indicates that emotional intelligence can predict a multitude of important life outcomes. Researchers have discovered that as emotional intelligence rises, so does prosocial behavior, ability to resist peer pressure, scores on measures of relatedness, and capacity to cope during stressful situations (Matthews et al., 2006; Mayer, 2001b; Rubin, 1999). Furthermore, lower levels of emotional intelligence are sometimes associated with illegal drug use, violence, and deviant behaviors (Bracket, Mayer, & Warner, 2004; Trinidad & Johnson, 2002). Unlike the construct of temperament, there is a paucity of research that investigates emotional intelligence using preschool aged children. Most of the research

that has been conducted using this variable has been with elementary school aged children and with adults. The studies below illustrate these above findings.

A study conducted by Rubin (1999), as discussed in Salovey and Pizarro (2003), used the MEIS to measure emotional intelligence in school-aged children. The MEIS was the first of several performance based measures of emotional intelligence that these authors developed based on their four branch theory. According to Salovey and Pizarro, Rubin found that same-aged peers rated children who scored higher on the MEIS (therefore having a higher emotional intelligence score) as less aggressive than children with lower scores. Their teachers rated these same children as more prosocial than those children who scored lower on the MEIS. Rubin's research found that emotional intelligence varied inversely with bullying and violence. Salovey and Pizarro also reported that Rubin found that emotional intelligence is associated positively with empathy.

A pilot study conducted in 2001 by Mayer looked at the relationship between emotional intelligence and several important emotional skills and behaviors. Eleven adolescents ranging in age from 13-17 years completed the MEIS-Adolescent version, a general intelligence test, and several items about how they would respond to difficult social encounters. Adolescents who scored higher on the MEIS were better able to label their own and others' emotions in situations. These same adolescents were able to use this emotional information to guide their actions and resist peer pressure. Those adolescents with higher scores of emotional intelligence were better able to depict emotional situations in accurate and rich fashions. Mayer concluded that emotional intelligence may perhaps help individuals in choosing better and more appropriate life and social decisions (2001b).

Bracket, Mayer, and Warner (2004) looked at the association between emotional intelligence and everyday behavior. Three hundred thirty college students completed an

emotional intelligence test, a personality test, and a scale that looked at everyday behavior. The everyday behavior included self-care, leisure pursuits, academic activities, and interpersonal relations. The results showed that female participants had higher emotional intelligence scores than male participants. However, emotional intelligence was more predictive of everyday behavior for males than for females. Another finding was that lower scores of emotional intelligence in males correlated with negative outcomes in everyday behavior. For example, males with lower emotional intelligence scores were more likely to use illegal drugs and alcohol, engage in deviant behavior, and have poor relationships with peers. Overall, this study found that emotional intelligence significantly correlated with maladjustment and negative behaviors for male college students but not for female college students.

Since accumulating evidence from research shows that emotional intelligence predicts a variety of important outcomes in adolescents and adults, what does research demonstrate that emotional intelligence predicts in children? There has been little research on the importance of emotional intelligence during the preschool years. One of the reasons for the paucity of information in this area is that there is no standardized comprehensive measure of emotional intelligence for preschoolers. The *Mayer Salovey Caruso Emotional Intelligence Test* (MSCEIT), a popular ability based measure of emotional intelligence, created by Mayer, Salovey, and Caruso (2004a) is to be used only with adults, age 18 years and up, and does not have a child version.

Sullivan (1999), in her dissertation, attempted to create a reliable and valid instrument that measures the levels of emotional intelligence in young students. She created the *Emotional Intelligence Scale for Children* (EISC) based on Mayer, Salovey and Caruso's (1999) MEIS and theory from child development literature. The EISC contains five subtests: Faces, Music, Stories, Understanding, and Managing and takes between 15-25 minutes to administer. At the same time Sullivan created the EISC, she

also constructed an Empathy scale, which consisted of eight items, to measure a child's capacity for empathetic responding. Last, Sullivan constructed the *Teacher/Parent Rating Scales of Emotional Intelligence* (T/PRSEI), 15 items to be completed by the child's parent or teacher that provided external measures of a child's emotional intelligence skills.

Sullivan's (1999) dissertation involved determining the validity and reliability of her comprehensive measure of emotional intelligence through a psychometric analysis. The study included 100 children who ranged in age from 4.5 to 9 years of age. The five subscales of the EISC demonstrated low to moderate internal consistency. Internal consistency scores for the subtests ranged from $\alpha(99) = .39$ (Music subscale) to $\alpha(96) = .66$ (Managing subscale). Sullivan also conducted criterion-related validation of the EISC. She found a strong positive correlation between the Total EI scores and the Empathy scale, $r\ (99) = .38$, $p < .001$. Although the internal consistency for the EISC was low to moderate, the additional scales Sullivan created to help validate the EISC were more psychometrically sound. Sullivan found that the internal consistency of the Empathy scale was moderate, $\alpha(99) = .61$ and the T/PRSEI internal consistency was high, teacher $\alpha(55) = .96$ and parent $\alpha(55)= .86$. The internal consistency scores on the T/PRSEI indicate that both scales (Parent and Teacher Form) are appropriate for research use to rate a young child's emotional intelligence abilities. In her discussion section Sullivan concluded that since the EISC does not demonstrate good internal consistency the scale needs to be revised and improved before it is used again to measure emotional intelligence in young children. For this reason I will use the T/PRSEI in this dissertation.

With Sullivan's (1999) development of measures of emotional intelligence (particularly the development of the T/PRSEI) researchers now have tools to investigate the construct of emotional intelligence in young children. Earlier I noted that higher levels of emotional intelligence in adults relate positively to a range of behavioral and

social benefits (Matthews et al., 2006; Mayer, 2001b; Rubin, 1999). Investigations can determine if this is also true for children. Knowledge of individual differences and how they relate to social skills would be helpful for both parents and teachers who could assist children who score lower in emotional intelligence to learn and to implement emotional skills to achieve success in the social and emotional world.

As mentioned before there is no research that investigates the relationship between emotional intelligence and social skills in preschool aged children. Research conducted with school aged children through adulthood has shown a positive relationship between these two variables. Rubin (1999) and Mayer (2001b) reported that children with higher levels of emotional intelligence were more likely to make better social decisions and were rated more prosocial. Bracket, Mayer, and Warner (2004) discovered that adults with lower levels of emotional intelligence were more likely to have poor peer relationships, and Schutte et al. (2001) found that adults who had higher scores on the measure of emotional intelligence had significantly higher scores on the measure of social skills. Does this mean that emotional intelligence accounts for the variability of social skills in preschoolers? There currently is no research to answer to this question.

Below are some reviews of literature that hint of a possible connection between the three variables in question; social skills, temperament, and emotional intelligence.

The Relationship Between Temperament, Emotional Intelligence, and Social Skills

"Intelligence and temperament are different domains of individual differences, yet they tend to interact in regulation of human behavior" (Necka, 2003, p. 296). In a review of the literature by Necka, which looked at the cognitive intelligence-temperament interface, he indicates that noncognitive factors (i.e., temperament) influence our intellect (cognitive, emotional, and social). Reed-Victor (2004) also postulated that children's individual differences in temperament may influence their development of self-regulation (skill of emotional intelligence) and social relationships (part of social skills).

As mentioned earlier, research has also investigated the connection between social skills and emotional intelligence (Schutte et al., 2001). Schutte et al. examined the association between various forms of interpersonal relations (one being social skills) and emotional intelligence. Adult subjects completed both a measure of emotional intelligence and a measure of social skills. The researchers reported results that indicated emotional intelligence is connected to interpersonal relations. Individuals' scores on the measure of emotional intelligence were significantly and positively correlated with their scores on the measure of social skills (r (76) = .41, $p < .001$).

There has also been research that investigated the association between individual differences, emotion regulation (which is one of the main components of emotional intelligence), and social competence. A recent study by Blair, Denham, Kochanoff, and Whipple (2004) investigated the involvement of characteristics of temperament and emotional regulation to the development of young children's social skills. In this study, parents and teachers of 153 preschool aged children (mean age = 44.39) completed questionnaires that measured temperament, emotion regulation, and social competence (only teachers filled out this latter form). Results showed that emotional regulation (i.e., the ability to cope with emotion) was more important than temperament alone in the development of prosocial behavior. Blair et al. discovered that passive coping strategies play an important part in the development of maladaptive behaviors in children. They found no significant interactions between temperament and emotional regulation in predicting socially competent behavior.

Other than Necka's (2003) suggestion that noncognitive factors like temperament may influence our various forms of intelligence (cognitive, emotional, and social), Reed-Victor's (2004) postulation that temperament may influence self regulation and social relationships, and research that looks at the relationship of these variables separately (Billman & Mc Devitt, 1980; Farver & Bransletter, 1994; Schutte, et al, 2001) there is

absolutely no research that looks at what accounts for the variability in social skills of preschool aged children. One reason for this paucity is that there is no published assessment measure of emotional intelligence in young children. Despite this lack, these topics and their interface are very important for researchers, parents, teachers, and other professionals to investigate and understand.

Rationale for the Study

The investigation of the relationship between the constructs of emotional intelligence, social skills, and temperament can be very beneficial to educational professionals. Like emotional intelligence, studies have linked temperament to pro-social behaviors and social adjustment. According to research by Blair, Denham, Kochanoff, and Whipple (2004) who looked at the role temperament and emotional regulation have in the development of social skill behaviors, ability to cope with emotions was more important than temperament alone in the development of prosocial behavior in children. Denham et al. (1994) even indicated that children who negotiate social interactions as well as managed their emotions were more likely to thrive later on in life. Knowing more about what accounts for the variability in children's social skills (temperament and/or emotional intelligence) will help teachers, professionals, and parents tailor interventions to assist the individual in enhancing his/her social skills. Enhancing a child's social skills at an early age has three major benefits. One, Merrell (2002) found that improving a child's social skills at an early age helps improve existing learning and behavioral difficulties. Two, strengthening a child's social abilities leads to a preventative effect by decreasing the likelihood of future behavioral and learning problems (Merrell, 2002). Last, remediation of social skills deficits in early school years is very important, because research has shown that children who fail to develop these critical skills appear to become more resistant to intervention over time (Kazdin, 1987).

The current study focused on investigating the relationship between emotional

intelligence, assessed by *The Teacher/Parent Rating Scales of Emotional Intelligence* (T/PRSEI; Sullivan, 1999), the dimensions of temperament, assessed by the *Temperament Assessment Battery for Children* (TABC-R; Martin & Bridger, 1999), and social skills in preschool aged children, measured by *The Social Skills Rating Scale* (SSRS; Gresham & Elliott, 1990). The outcome of this study can help to facilitate discussion about what accounts for the variability in social skills; temperament, emotional intelligence, or both variables.

Hypotheses

This study investigated how well temperament and emotional intelligence predicted how children behave with regard to their social skills. The relationships among these three variables will also be discussed. The following are the hypotheses that were investigated:

HO1: Preschool aged children's scores on the *Teacher/Parent Rating Scale of Emotional Intelligence* (T/PRSEI) measure of emotional intelligence will predict their scores on the *Social Skills Rating Scale* (SSRS) measure of social skills. It is expected that higher emotional intelligence scores will predict higher levels of social skills.

This hypothesis was proposed because several researchers (Bracket, Mayer, & Warner, 2004; Rubin, 1999; Schutte et al., 2001) reported that school aged children and adults who have higher levels of emotional intelligence have higher levels of social skills.

HO2: Preschool aged children's scores on the Inhibition scale of the *Temperament Assessment Battery for Children-Revised* (TABC-R) measure of temperament will predict their scores on the *Social Skills Rating Scale* (SSRS). It is expected that lower Inhibition scores will predict higher social skills scores.

The second hypothesis was constructed because Martin and Bridger (1999) found that children who are high on the Inhibition scale of the TABC-R may be slow to develop

socially, have difficulty approaching and introducing themselves to new individuals, and have trouble dealing with new social situations.

HO3: Preschool aged children's scores on the Impulsivity scale of the *Temperament Assessment Battery for Children- Revised* (TABC-R) will predict their scores on the *Social Skills Rating Scale* (SSRS). It is expected that lower Impulsivity scores will predict higher social skills scores.

The third hypothesis is also derived from research conducted by Martin and Bridger (1999). They reported that children who high on the Impulsivity scale of the TABC-R are "more difficult to live with, to socialize, and thus are often the focus of a great deal more of parental and teacher discipline" (p. 62).

CHAPTER III

Methodology

This study examined the relationship between emotional intelligence, temperament, and social skills in preschool children. This chapter outlines the methodology of the study by describing the participants and the selection process, the assessment materials, and data collection and analysis procedures.

Participants and Their Selection

The study included parents and teachers of preschoolers from a private preschool program for young children. Although the preschool program services both children with and without disabilities, birth through five years of age, only children who are typically developing participated in this study. The study did not include children with a special education label of "Preschooler with a Disability" in the participant selection. The label "Preschooler with a Disability" encompasses many extensive disorders and disabilities. For example, some children who carry the label "Preschooler with a Disability" may have social and emotional delays, other children may have speech and language delays that may interfere with their social development, and other students may have cognitive delays that may hinder their emotional development. Thus, the definition of "Preschooler with a Disability" is broad and this makes it difficult to pinpoint the exact disabilities of these particular children who may in turn have skewed and confounded the results of this dissertation. For this reason parents and teachers of children with this label were not included in this study

I recruited potential participants from the preschool where I am employed. This preschool is located in Suffolk County on Long Island, New York. I work at one of the four locations of this school and recruited students from the three sites where I do not work. There are approximately 830 students enrolled in all four sites for the 2008-2009 academic school year. The ethnic composition of the student body includes Caucasian

(48%), African American (32%), Hispanic (13%), and Asian (7%) children. Students who attend this preschool are either classified as daycare/regular education students (390 students) or as special education students (440 students).

Prior to parent contact, I gave an information/solicitation letter (see Appendix A) to all 23 regular education teachers of potential student participants within the participating school. All 23 teachers agreed to partake in the study (100% of those solicited). All participating teachers were Caucasian women who ranged in age from 24 to 53 (mean age = 35.70, *SD* = 3.42). Of the 23 teachers, 15 had their bachelor's degree in education and 8 had their master's degree in education. These teachers have taught at the preschool for an average of 5.91 years (SD = 2.43).

Once the teachers indicated their interest in participating in the study, I sent an information packet about the study and incentive/recruitment flier (Appendix B and C) home to parents of all potential preschool subjects in their classrooms to recruit parent participants. Teachers placed the information letter and incentive flier to the parents in the children's backpacks. The letter acknowledged the awareness and approval of this study by the school administration, as well as the classroom teacher. This information packet also contained consent forms (see Appendix D) for the parents to sign. Parents were informed in the consent packet of incentives for participation (Appendix C). Participating parents received a summary of their child's temperament, social skills, and emotional intelligence profile, as well as the results of the overall study. In addition, each participating parent who returned a completed packet was entered into a lottery to win a gift check. The information letter asked the parents to return the consent forms in their children's backpacks. Inclusion in the study depended on acquisition of informed consent from each child's parent or guardian.

Rating scales and questionnaires completed by the student's teacher as well as a questionnaire completed by the child's parent/guardian provided the data for this

dissertation. Two hundred and twenty five potential preschool participants were invited to participate, the other 105 typically developing preschoolers that I did not solicit were either too young to participate in the study or attended the preschool where I worked. Students from the site where I worked were not included in the study due to the possibility of the risk of coercion. Ninety four parents agreed to participate (42% of those solicited). Of the 94 parents who agreed to participate, all completed the packets (100%). Therefore there were 94 participants in the current study.

Table 1 presents participant's demographic information. The preschoolers in the study were between the ages of 4.0 and 5.6 years of age. Their average age in months was 57.84 (*SD* = 4.13). Of the 94 participants, 49 were female preschoolers (52%) and 45 were male preschoolers (48%). The mean Socio Economic Status (SES) of the participants as measured by the Hollingshead was 41.78 (*SD* = 10.83). This measure has scores that range from a low of 8 to a high of 66. The higher the Hollingshead score the better the academic level and occupation of the participants' parents. The majority of the sample reported that they were employed within the technicians, semi to minor professionals, managers, and small business owners' domain, which is considered to fall in the middle income range. Table 2 presents participants' ethnicity. While most participants were Caucasian, almost a third were of other races or ethnicities.

Table 1

Demographic Information of the Participants

	n	Age Range	Mean Age	Gender	SES
Preschool Students	94	48-66 months	57.84 months *SD* = 4.13	49 females 45 males	41.78 *SD* = 10.83
Teachers	23	24 – 53 years	35.70 years *SD* = 3.42	23 females	

None of the children in this study received any type of special education services

and all were placed in integrated classrooms (i.e., classrooms where half the students were regular education preschoolers and the other half of the students receive special education services). The integrated classrooms were team taught by two teachers (regular education teacher and special education teacher) and the classroom size ranged from 9 students to a maximum of 18 students. The regular education teacher completed the packets of measures for each participant.

Table 2

Ethnicity of the Preschool Participants

	n	%
Ethnicity		
Caucasian	67	71%
Hispanic	8	9%
Multi-Racial	9	10%
African American	5	5%
Asian	4	4%
Indian	1	1%

Instruments

The Teacher/Parent Rating Scales of Emotional Intelligence in Children (T/PRSEI; Sullivan, 1999). The T/PRSEI provides an external measure of young children's emotional intelligence skills. In her dissertation, Sullivan created the T/PRSEI at the same time as she created the *Emotional Intelligence Scale for Children* (EISC). The T/PRSEI provided validation information for the EISC as well as an outside perspective (parent and teacher outlook) of an individual's emotional intelligence.

Sullivan (1999) developed both the EISC and the T/PRSEI by researching theoretical assumptions about child development, using Mayer and Salovey's (1997)

definition of emotional intelligence, and by adapting items from Mayer et al.'s (1997) adult scale of emotional intelligence, the *Multifactor Intelligence Scale for Children* (MEIS). Prior to the EISC, there was no existing comprehensive measure of emotional intelligence for young children. Internal consistencies for the EISC subscales ranged from low to moderate (with alphas ranging from .39 to .66), suggesting that this measure needs further refinement before being used even as a screening or research tool. Sullivan (1999) also noted in her research that the EISC would need several revisions in both the items and administration before it should be used again. After the revisions, Sullivan suggested in her discussion section that the psychometric analyses be replicated for the EISC to assess if this is valid and reliable instrument to measure emotional intelligence in children. Unfortunately, Sullivan has completed neither these changes nor psychometric revisions. For these reasons and since the internal consistency ratings for the T/PRSEI were higher than the internal consistency rating scores for the EISC, I used the T/PRSEI in this study as the measures of emotional intelligence for preschoolers.

The T/PRSEI (Sullivan, 1999) consists of 15 items that look at the child's emotional intelligence skills from the ability to perceive emotions to his or her ability to manage emotions. Sullivan arranged the questions for the scales in hierarchical order from low level emotional intelligence skills to high level emotional intelligence abilities. Participants rate the items on a five-point scale (*Never*-0, *Seldom*-1, Sometimes-2, *Often*-3, and *Almost Always*-4) with possible scores ranging from 0-56, with higher scores indicating greater emotional intelligence.

Sullivan (1999) investigated the internal consistency of the T/PRSEI by looking at ratings provided by 56 teachers of children who ranged in age from 4.5 and 9 years of age. She found that the internal consistency alpha reliability for the Teacher Rating Scale was .96. This internal consistency score indicates that the scale is appropriate for research and can be used to rate a young child's emotional intelligence abilities. The alpha

coefficient for the T/PRSEI in this dissertation study was .94, which is similar to that found by Sullivan. Sullivan did not provide any validity information for the T/PRSEI. The T/PRSEI was only developed as a supplement to the EISC and was used to provide an outside perspective of the emotional intelligence skills in young children.

Temperament Assessment Battery for Children-Revised (TABC-R; Martin & Bridger, 1999). The TABC-R is an instrument designed to determine temperamental traits (Inhibition, Negative Emotionality, Activity Level, and Lack of Task Persistence) and types (Inhibition, Highly Emotional, Impulsive, Typical, Reticent, Passive, and Uninhibited) according to Martin and Bridger's theory of temperament. The assessment of traits (individual characteristics) is often the initial step in the determination of temperamental types. Thus, I only investigated temperamental traits in this dissertation.

Martin and Bridger (1999) based the original *Temperament Assessment Battery for Children* (TABC; Martin, 1988) mainly on Thomas and Chess' (1977) temperament research. Due to new normative data, theoretical shifts, and current research on temperament, Martin and Bridger revised the TABC creating the TABC-R. The TABC-R is to be used with children between the ages of 2 and 7. It has two forms: Parent and Teacher. I used the Teacher form of the TABC-R in this study.

The TABC-R Teacher Form consists of 29 items. For each item, the teacher must rate the child on a seven-point scale. The polarities range from 1- *hardly ever* to 7- *almost always*. Scores for this form range from 29 to 203.

The teacher form of the TABC-R has an Inhibition Scale (9 items) and an Impulsivity Scale (20 items). The Inhibition scale focuses on the individual's tendency to withdraw from new social environments, to be hesitant in approaching novel individuals, and to be cautious about engaging in activities in new situations.

Three related subscales comprise the Impulsivity scale: The first Impulsivity subscale, Negative Emotionality, assesses the tendency to express emotion in a negative

way that results from frustration or denial of wants. The second Impulsivity subscale, Activity Level, measures energy expenditure and the inability to control gross motor behaviors in environments in which it is appropriate to do so. The final Impulsivity subscale, Lack of Task Persistence, measures two related constructs: attention and ability to persist on a difficult task. This subscale assesses the inability of an individual to continue to engage in learning new activities or to manifest continued attention over relatively long periods of time. Thus, the Impulsivity scale assesses an individual's inability to control intense emotion, gross motor activity, and attention. The Impulsivity scale for the teacher form of the TABC-R is comprised of three subscales: Activity Level (4 items), Negative Emotionality (8 items), and Lack of Task Persistence (8 items). The TABC-R Score Calculation Sheet spells out the exact items for each dimension and scale.

The normative sample for the Teacher Form included teachers of 1150 children who varied in age, gender, socioeconomic status, ethnicity, and geographic region according to the 1996 census data. With regards to internal consistency of the Teacher Form, Martin and Bridger (1999) found that the alpha coefficients ranged from .86 for Activity Level to .95 for Impulsivity. For this dissertation study, the alpha coefficient on the TABC-R for Inhibition was .92 and .94 for Impulsivity.

To determine interrater reliability of the TABC-R, Martin and Bridger (1999) correlated mothers' and teachers' ratings from their respective forms. Correlations between scores on the Teacher and Parent Forms ranged from .22 to .47 for the normative sample.

Martin and Bridger (1999) presented data that looked at the short-term stability (ratings were separated by 4 to 8 weeks) of the Teacher Form. Thirty-eight teachers rated the temperament of 156 students provided these ratings. Martin and Bridger found stability coefficients that ranged from .47 for Activity Level to .71 for Inhibition.

Martin and Bridger (1999) also assessed the validity of the Teacher form of the

TABC-R. First, they looked at validity by intercorrelating the scales and subscales of the TABC-R. They then looked at the validity of the TABC-R by studying the correlations of its scores with scores from measures of related constructs such as cognitive ability, behavior problems, and personality.

Correlations among the scales of the Parent Form showed that the Inhibition Scale is orthogonally related to the Impulsivity Scale. This finding was obtained using the normative sample which consisted of 1036 mothers. This information provides support for the theoretical underpinning of the TABC-R (i.e., inhibition is unrelated to the indictors of impulsivity, negative emotionality, activity level, and lack of task persistence). Correlations between the scales ranged from -.18 to .22.

The theory underpinning the TABC-R predicted that the indicators, or subscales, of impulsivity would be moderately to highly correlated. The correlations were lower than the authors expected when looking at the correlations among scales for the Teacher Form. The Inhibition Scale was not significantly related to the Impulsivity Scale, with correlation scores that ranged from -.10 to .14. The correlations among the Impulsivity aggregate ranged from .56 to .79, showing moderate relations that were predicted by the theory underpinning the TABC-R.

According to Martin and Bridger's (1999) temperament theory, all temperament dimensions should only be modestly correlated with cognitive ability measures. Research has shown otherwise. Data collected by Martin and Bridger for the validation of the TABC-R showed that, for teachers' reports, Lack of Task Persistence was significantly, negatively correlated (r = -.51, p < .001) with one measure of cognitive ability (Differential Ability Scales). This was found during a study that used a small clinic-referred sample of preschool children (n = 50). In the same study, Lack of Task Persistence was also significantly, negatively correlated with the Peabody Picture Vocabulary Test-Revised and the Test of Visual Motor Integration, with correlations

ranging from -.48 to - .51.

The authors discussed a study (DeWalt, 1999, as cited by Martin & Bridger, 1999) comparing the TABC-R temperament types to personality characteristics. In this study teachers rated 288 participants' personality on the Inventory of Children's Individual Differences (Halverson & Havill, 1999) and also their rated temperament. Children whose scores fell in the Highly Emotional and Impulsive temperament groups were more like to be in the Non-Compliance and Dominance group on the Inventory of Children's Individual Differences than children in the other temperament clusters. Uninhibited children had high scores on the Self-Regulation, Creativity, and Intelligence personality clusters. Highly Emotional children, on the other hand, had the lowest scores on those clusters. DeWalt also found that children who fell in the Uninhibited group had the highest scores on the Positive Emotionality and Sociability clusters. Again, the Highly Emotional children had the lowest scores on those clusters. Last, DeWalt found that children in the Impulsive group had the highest score on the Athleticism cluster, while the Inhibited group had the lowest score.

Social Skills Rating System (SSRS; Gresham & Elliot, 1990). The SSRS is a norm-referenced instrument that assesses students' social behaviors. There are three forms for the SSRS: teacher, parent, and student. Children ranging in age from 3 to 18 years can be evaluated with the SSRS. The SSRS forms are available for three developmental levels (preschool, elementary, and secondary). In this dissertation I used the preschool edition teacher form of the SSRS.

The SSRS consists of 30 items that rate social skills. For each item the teacher must rate how often a behavior occurs on a 3 point scale. The polarities range from 0- never to 2- very often. Scores for this form range from 0 to 60.

Three core behaviors of social skills are assessed in the SSRS and make up the three subdomains of the Teacher form. The Cooperation subscale (measured by 20 items)

looks at behaviors such as sharing, helping, and following rules. Next, the Assertion subscale (measured by 20 items) investigates behaviors including asking for information, introducing oneself, and responding to the behaviors of others. Last, the Self-Control subscale (measured by 20 items) takes into account behaviors that arise in conflict and non-conflict situations; including teasing, turn taking, and compromising. A total social skills score is obtained from the combination of scores on the three subdomains and this is the score that was used in this dissertation.

The normative sample of the SSRS included a standardized national sample of 4,170 children (grades 3 through 12) that included self ratings and ratings by 1,027 parents and 259 teachers. The teacher sample unfortunately did not include preschool data. The SSRS normative sample data however includes information on special education students. An attempt by Gresham and Elliott (1990) was made during the standardization to approximate the national distribution in 1988 for race, geographic representation, and community size.

Gresham and Elliott (1990) assessed two forms of reliability for the SSRS. With regard to internal consistency of the SSRS-Preschool Teacher Form, they found that coefficient alpha reliabilities for the subscales and Total Scale scores ranged from .90 for Cooperation and Assertion subscales to .94 for the Total Scale score. The Total Scale score alpha coefficient for this dissertation study was .91, which is similar to that obtained by Gresham and Elliott. The test-retest reliability of the SSRS was obtained by having teachers from the Elementary standardization sample rate the same 288 students four weeks after their original standardization ratings. Here considerable support of temporal stability was indicated for teacher ratings, with test-retest correlations ranging from .75 for the Assertion subscale to .88 for the Cooperation subscale. The Total Scale score test retest reliability coefficient was .85.

The validity of the SSRS was also assessed by Gresham and Elliott (1990).

Criterion related validity for the Teacher Form of the SSRS was conducted by looking at the relationship between the SSRS and the Social Behavior Assessment (N = 79). The correlation between the two scales ranged from -.15 to -.73 for the subscales and -.68 for the Total Scale correlations. To further investigate the criterion related validity of the teacher form, Gresham and Elliot also compared the SSRS with the *Child Behavior Checklist* (CBCL) using 99 elementary students from the standardization sample. Negative correlations between the SSRS Social Skills subscales and the CBCL were found and range from -.27 to -.67.

Convergent validity was assessed by Gresham and Elliott (1994) by using teacher and parent ratings on the SSRS- Preschool Edition. In a sample of 193, it was found that the convergent validity coefficients between common subscales and the Total Score ranged from .16 to .25 (p > .02), with a median of .18. When discriminant validity was investigated between different subscales, the correlations between different informants was low (correlations ranged from .04 to .28). Demaray et al. (1995) reported in a review article that considered six social skills rating scales, the SSRS was the most comprehensive index relative to other social skills scales that were reviewed.

Hollingshead Four Factor Index of Social Status (Hollingshead, 1975). This questionnaire was included in the demographic packet sent home to the student's parents and (see Appendix E) was to provide information about the parents educational and occupational back ground as well as their marital status so that a level of socioeconomic status (SES) of each child's family can be obtained. Although the Hollingshead is an older measure, I used it because there is no free/reduced school lunch in the study preschool. For each participating family, this information translates into one of five social strata. According to the Hollingshead manual and guidelines, individuals who fall within the Class I have a higher socioeconomic status relative to the other classes measured. I used the SES information to describe the population of the current study. The

demographic questionnaire also asked questions about the preschooler's age, gender, and race. I also obtained participants' classroom placement (regular or integrated) by asking the parent to indicate which teacher their child had. As indicated above, participants did not have disabilities.

Hollingshead (1975) indicated that the validity and reliability estimates for this social status scale were based on data scores found on the 1970 census and the National Opinion Research Center (NORC). The Hollingshead social status scale was correlated with the prestige scores developed by the NORC (r = .93). In an article by Gottfried (1985), he indicated that the *Hollingshead Four Factor Index of Social Status* was a highly valid and reliable measure of socioeconomic status in the United States.

Procedure

After receiving signed parent consent forms (Appendix D), I assigned each consenting participant an identification number in order to ensure confidentiality. This number was used in lieu of a name on all information collected (questionnaires and data collection forms). I maintained the list of corresponding names in a locked cabinet.

After the parents provided informed consent, I arranged for teachers to send home the demographic questionnaire (Appendix E) with each child. The parent questionnaire took approximately 5 minutes to fill out. The questionnaire also included directions for how to return the information and how to contact the examiner if there were any questions. School personnel kept the returned questionnaires in a secure location until I picked them up.

Subsequently, the teachers of the children in the study filled out the *Temperament Assessment Battery for Children-Revised Teacher Form* (TABC-R: Martin & Bridger, 1999), *The Teacher/Parent Rating Scales of Emotional Intelligence in Children* (T/PRSEI; Sullivan, 1999), and *The Social Skills Rating System- Precshool Teacher Edition* (SSRS; Gresham & Elliott, 1990) for participating students. Initially, students'

names were temporarily attached to the packet so that the teachers know the children for whom they completed the forms. Once the teachers returned the questionnaires, the child's name was removed and given the corresponding identification number used on the parent packet.

Data Analysis

This study looked at Pearson correlations to investigate if there was any linear relationships between the predictor variables, emotional intelligence and temperament (inhibition and impulsivity), and the dependent variable, social skills. Multicollinearity among the predictor variables was also assessed. Following this a multiple regression analysis was conducted to test the hypotheses stated in Chapter 2. See Figure 1 below.

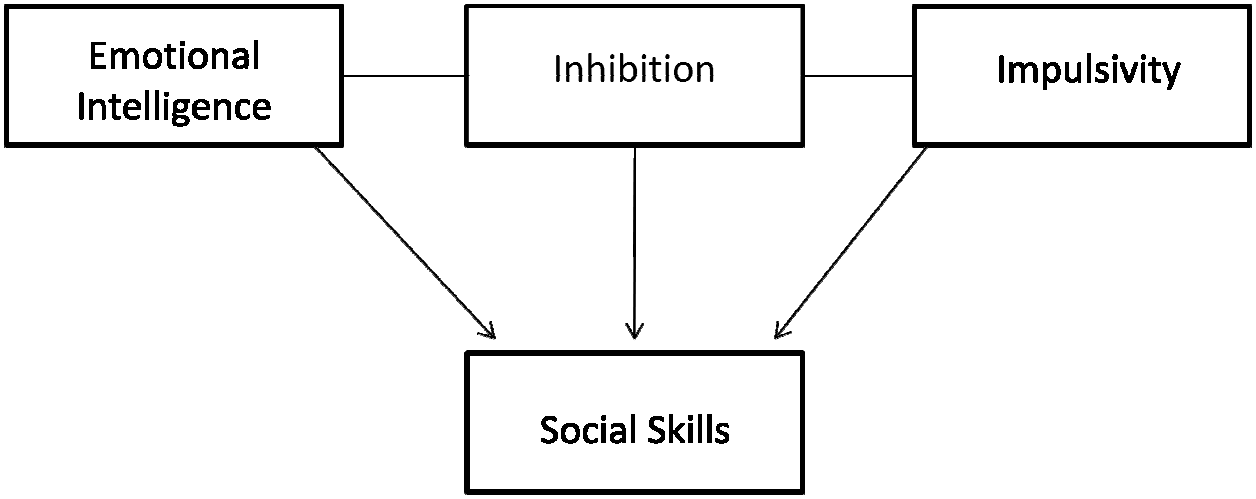


Figure 1. Schematic Representation of the Data Analysis

Some researchers (Bracket et al., 2004) found gender differences in the way emotional intelligence relate to various outcomes. Thus, I also tested for differences in girls' and boys' temperament, emotional intelligence, and social skills ratings using *t*-tests, and planned to use gender in the analyses if any of these relationships were significant.

CHAPTER IV

Results

This chapter presents the results of data analysis for this study. It begins by reporting descriptive statistics for study variables (SSRS, TABC-R, and TPRSEI). Statistical relationships among participant descriptor variables and study variables are presented followed by correlations among the study variables. Following this, the chapter presents results of a *t*-test to explore any moderating effects of gender. Last, the chapter presents results of data analyses testing each of the three hypotheses.

Descriptive Statistics

Table 2 presents the means and standard deviations of the students' scores on each of the variables measured: social skills (SSRS), emotional intelligence (T/PRSEI), and temperament (TABC-R inhibition (INH) and impulsivity (IMP)).

Table 3

Means and Standard Deviations of the Study Variables

Variable	*M*	*SD*	Range	α
Social Skills (SSRS)	108.82	13.75	71-130	.91
Emotional Intelligence (T/PRSEI)	38.55	10.36	11-56	.94
Temperament-Inhibition (TABC-R-INH)	46.09	10.83	30-80	.92
Temperament-Impulsivity (TABC-R-IMP)	43.48	8.32	31-66	.94

Note: $N = 94$

Results from this study showed that with regard to the scores from the social skills measure, the children's scores in this sample were within the average range of the normative sample for the SSRS (Gresham & Elliott, 1990). The participants' scores on

the measure of temperament, for both impulsivity and inhibition, also fell within the average range for the TABC-R (Martin & Bridger, 1999).

Since the scores obtained from the T/PRSEI (i.e., emotional intelligence) were raw scores, I transformed them to *z*-scores to standardize the distribution. It was also noted that the raw mean score of Emotional Intelligence in this dissertation sample was 11 points lower than the raw mean score of Emotional Intelligence in Sullivan's (1999) participant sample. The reason for this lower score may be due to the younger population sampled in the current study, the age range for this sample was from 4 years to 5 years 6 months whereas the age range in Sullivan's sample was 4 years 5 months to 9 years of age. Research has shown that emotional intelligence is developmental, and as children age, their level of emotional intelligence increases (Denham, Zoller, & Couchound, 1994; Mayer, Caruso, & Salovey, 1999; Mayer & Salovey, 1997).

Correlation Statistics

Hypotheses testing. Pearson product moment correlations between the three predictor variables (Emotional Intelligence, Impulsivity, and Inhibition) and the dependent variable (Social Skills) revealed some significant correlations (see Table 3). The data indicated that there was a positive relationship between SSRS and T/PRSEI scores ($r = .60$, $p < .01$); therefore, as participants' social skills scores increased so did their emotional intelligence scores. On the other hand, there were negative relationships between SSRS scores and scores on the two temperament (TABC-R) variables; impulsivity ($r = -.59$, $p < .01$) and inhibition ($r = -.54$, $p < .01$). These negative relationships indicated that as social skills scores increased, both the temperament variable scores decreased. The correlations between emotional intelligence and the temperament variables also showed a negative relationship. Here it was discovered that as T/PRSEI scores increased, TABC-R scores decreased for both, impulsivity and inhibition variables, $r = -.47$, $p < .01$; $r = -.51$, $p < .01$ respectively. Finally, the

relationship between the two temperament variables inhibition and impulsivity was not significant. This latter finding agrees with findings by Martin and Bridger (1999). These researchers reported that Inhibition was unrelated to Impulsivity, and confirms their assertion that Inhibition is not the opposite of Impulsivity. All of the significant relationships addressed above suggest a moderately strong relationship (representing medium effect sizes; Cohen, 1992) among the variables. These significant correlations provide confirmation for all three of the study hypotheses.

Table 4

Correlations among the Predictor Variables (TABC-R-IMP, TABC-R-INH, T/PRSEI) and the Dependent Variable (SSRS)

	SS	EI	INH	IMP
Social Skills (SSRS)		.60*	-.54*	-.59*
Emotional Intelligence (T/PRSEI)	.60*		-.51*	-.47*
Temperament-Inhibition (TABC-R-INH)	-.54*	-.51*		.01
Temperament-Impulsivity (TABC-R-IMP)	-.59*	-.47*	.01	

Note: $N = 94$, * = correlation is significant at the $p < .01$ level (2 tailed).

Relationship of study variables to descriptors. Relationships among the study variables and the descriptor variables (i.e., socioeconomic status, age, and gender) were also investigated (See Table 5). Pearson product moment correlations among EI, social skills, temperament (inhibition and impulsivity) and the descriptor variable of socioeconomic status produced no significant relationships. Point biserial correlations among gender and the predictor variables were conducted next and yielded one significant result: a negative relationship between emotional intelligence and gender, $r = -.26$, $p < .05$. Although this relationship was significant, the small correlation coefficient (i.e., effect size; Cohen, 1992) suggested a relatively weak relationship between the variables. Correlations among the study variables and age, produced another statistically

significant relationship. Here social skills and age had a positive relationship, (r = .21, p < .05), which suggests that as a child's age increased so did the child's social skills score. The small correlation coefficient suggested a weak relationship between social skills and age. There were no other significant correlations between age and the other study variables.

In order to test whether emotional intelligence, temperament (inhibition and impulsivity), and social skills differed by gender, an independent samples *t* test was performed. The difference between emotional intelligence scores for males and females was significant, $t(92) = -2.56$, $p = .012$, females had higher EI scores ($M = 41.10$, $SD = 9.90$) than males ($M = 35.78$, $SD = 10.25$) in the sample. The independent samples *t* tests to investigate social skills and temperament according to gender were not significant; therefore both social skills and temperament did not differ by gender.

Table 5

Correlations among the Study Variables and the Descriptor Variables

	SES	Age	Gender
Social Skills (SSRS)	-.03	.20*	.10
Emotional Intelligence (T/PRSEI)	.00	.10	-.26*
Temperament-Inhibition (TABC-R-INH)	.02	-.10	.10
Temperament-Impulsivity (TABC-R-IMP)	.10	-.10	.20

Note: $N = 94$, * = correlation is significant at the $p < .05$ level (2-tailed).

Regression Analyses

The histograms and scatter plots that were generated during the data analysis indicated that there was no evidence of violations of test assumptions: linearity, normality, and/or homogeneity (See Appendix F). A series of multiple regressions were conducted to investigate the hypotheses.

Three steps of multiple regression analyses were conducted (see Tables 6 and 7). Initially, all the primary predictor variables (emotional intelligence, temperament-inhibition, and temperament-impulsivity) were entered into the multiple regression predicting social skills (see Table 6). Results indicated that higher scores of emotional intelligence were predictive of higher social skills scores, $t(90) = 1.84$, $p = .07$. Although not significant at the customary $p < .05$ level, this positive relationship showed a trend toward significance and therefore Hypothesis 1 was partially supported. Scores on both temperament variables were predictive of social skills. Specifically, there was a significant negative relationship between inhibition and social skills, $t(90) = -5.24$, $p < .001$. Thus, higher scores on the inhibition scale of the TABC-R predicted of lower scores on the SSRS, therefore Hypothesis 2 was confirmed. Additionally, impulsivity and social skills scores were also negatively related, $t(90) = -6.07$, $p < .001$, providing confirmation for Hypothesis 3. Therefore, high scores on the impulsivity scale of the TABC-R were predictive of lower scores on the SSRS.

Preliminary analyses (see Table 5) and past research (Bracket et al, 2004) show that gender may be influencing one of the predictor variables (i.e., emotional intelligence) as well as possibly creating a moderating effect. In order to assess the influence of gender on the predictor variables, particularly EI, gender was entered in the second step of the regression analysis after the first three variables (emotional intelligence, temperament-inhibition, and temperament-impulsivity) were entered as a block. Results of the overall regression analysis when all four predictor variables (emotional intelligence, temperament-inhibition, temperament-impulsivity, and gender) were included was significant, $F(5, 88) = 38.39$, $p < .001$. This indicated that scores on the SSRS, which measures social skills, can be predicted reasonably well from all four predictor variables. When gender was entered into the regression analysis, it was discovered that the variance accounted for significantly increased, $t(89) = 4.77$, $p < .001$. Prior to the variable of

gender being entered into the regression analysis, the variance accounted for by emotional intelligence, inhibition, and impulsivity was 60%. The addition of gender added 8% more variance, approximately 68% of the variance in social skills was accounted for by emotional intelligence, both temperament variables, and gender. In addition, when gender was added as a predictor in Step 2 of the multiple regression, the *t*-test assessing the contribution of EI revealed it as a stronger predictor of social skills, $t(89) = 2.87$, $p < .01$. Thus, when gender was controlled for, emotional intelligence significantly predicted students' social skills, confirming Hypothesis 1. These results suggest that EI predicts social skills but the relationship is reduced because of a suppressor effect caused by gender; males and females seem to differ across EI scores. This relationship between EI and social skills cannot be revealed without the inclusion of gender (which is not related to the dependent variable) into the model, which is a clear indication that suppression is occurring.

Last, a third set of multiple regressions were conducted to investigate the interaction of gender and emotional intelligence by adding the interaction term of gender and emotional intelligence. This was done to investigate if there was a moderating effect of gender. The interactions of gender and temperament, both inhibition and impulsivity, were not investigated because a significant relationship among these variables was not found (see Table 4). Results were not significant, $t(88) = -1.29$, $p = .2$, $R^2_{inc} = .006$, therefore gender did not have a moderating effect on emotional intelligence as past research results found by Bracket et al (2004) have suggested.

Finally, to investigate which study variable (emotional intelligence, temperament-inhibition, temperament-impulsivity, and gender) accounted for the most variability in social skills, the proportion of variance uniquely explained by each study variable was obtained. This was done by squaring the part correlation of each study variable with social skills. The results are as follows: gender accounted for 8% of the unique variance,

while emotional intelligence accounted for 1%, and inhibition and impulsivity scores accounted for the most unique variance 12% and 16% respectively.

Table 6

Results of Sequential Multiple Regression to Predict Social Skills from the Study and Descriptor Variables

Variables	*B*	*β*	*SE B*	*T*
Step 1: Emotional Intelligence (EI)	.22	.16	.12	1.84
Temperament-Inhibition	-.53	-.41	.10	-5.24*
Temperament-Impulsivity	-.76	-.47	.13	-6.07*
Step 2: Gender	8.14	.30	1.71	4.77*
Step 3: Gender X EI	-.21	-.30	.17	-1.29

Note: $N = 94$, * = correlation is significant at the $p < .001$.

Table 7

Summary R^2 values and R^2 Changes at Each Step in the Sequential Regression

Predictors Included	R^2 for Model	F for Model	R^2 Change	F for R^2 Change
EI, INH, IMP	.60	F(3,90) = 44.62*	.60	F(3,90) = 44.62*
EI, INH, IMP, Gender	.68	F(4,89) = 47.22*	.08	F(4,89) = 22.72*
EI, INH, IMP, Gender, Gender X EI	.67	F(5,88) = 38.39*	.00	F(5,88) = 1.66

Note: $N = 94$, * = $p < .001$

Summary

To summarize, analyses confirmed all three hypotheses. First, results showed that higher scores of emotional intelligence were predictive of higher scores of social skills, $t(90) = 1.84$, $p = .07$. This positive relationship showed a trend toward significance and

therefore Hypothesis 1 was only partially supported. However further regression analysis results found that when gender was controlled for, emotional intelligence significantly predicted students' social skills, $t(89) = 2.87$, $p < .01$. Next, both temperament variables (inhibition and impulsivity) were predictive of social skills, therefore Hypotheses 2 and 3 were supported. A negative relationship was found between both temperament variables and social skills. Higher scores on the inhibition scale of the TABC-R predicted of lower scores on the SSRS, $t(90) = -5.24$, $p < .001$. Last, high scores on the impulsivity scale of the TABC-R were predictive of lower scores on the SSRS, $t(90) = -6.07$, $p < .001$. Results of this study found that both emotional intelligence and temperament (inhibition and impulsivity) account for the variability in preschoolers social skills.

Chapter V

Discussion

This chapter reviews the study findings and discusses their implications for school psychologists. The chapter also reports the study's limitations and provides suggestions for further research.

This study sought to investigate the relationship among emotional intelligence, temperament, and social skills in preschool aged children. It was hypothesized that children's level of social skills would be influenced by both their level of emotional intelligence and their temperament. Parents of 94 preschool children, aged 4 years to 5 years 6 months completed a demographic questionnaire and gave their child's teacher permission to complete three rating scales, *Social Skills Rating Scale* (Gresham & Elliott, 1990), *Temperament Assessment Battery for Children- Revised* (Martin & Bridger, (1999), and the *Teacher/Parent Rating Scale for Emotional Intelligence* (Sullivan, 1999). Based on the data collected all the proposed hypotheses were confirmed. It was found that both emotional intelligence and temperament account for variability in young children's level of social skills, with the temperament variables making the greater contribution.

The results of this study found that a child's level of social skills is indeed significantly influenced by his/her level of emotional intelligence and temperament. Unlike Blair, Denham, Kochanoff, and Whipple (2004) who did not find significant interactions between temperament and emotional regulation in predicting socially competent behavior in preschoolers, this study did. In Blair et al.'s study the researchers only looked at one skill of emotional intelligence (emotional regulation) rather than all the components of emotional intelligence according to Mayer and Salovey (1997). The measure in this dissertation covered all the emotional intelligence dimensions. Thus, the difference in measures used in this study and the study by Blair et al. may help to explain

why they did not find significant results when looking at the interactions between temperament and emotional regulation and socially competent behavior in preschoolers like this dissertation did.

This study's results support the findings of Bracket et al. (2004), Rubin (1999), and Schutte et al. (2001), and extend their findings into the preschool community. Findings of this study indicate that preschoolers with higher levels of emotional intelligence, as measured by the T/PRSEI, have higher levels of social skills, measured by the SSRS, as reported by their teachers. This result also supports the findings of Salovey and Sluyer (1997), Scharfe (2000), and Denham et al. (2003) who all reported that competence in the emotional world of children and young adults is associated with superior social skills.

The results of this research are also in keeping with the results of Caspi and Silva (1995), Caspi (2000), and Newman et al.'s (1997) findings that temperament influences interpersonal relationships, which supports Hypotheses 2 and 3. Here it was found that preschool aged children scores on both temperament variables (impulsivity and inhibition) were predictive of social skills. Negative relationships were found between both temperament variables and social skills. Results of this study duplicate Caspi and Silva and Caspi's findings by reporting that children who scored high on the Impulsivity subscale of the TABC-R have lower levels of social skills on the SSRS. Finally, like Newan et al. findings, results of this study also discovered that individuals who were inhibited (scored higher on the Inhibition scale of the TABC-R) were also more likely to have lower levels of social skills.

This research also supports Martin and Bridger's (1999) findings on characteristics of Inhibited and Impulsive children. Martin and Bridger reported that children who scored high on the measure of Inhibition were slow to develop socially, have trouble approaching and introducing themselves to new people, and have difficulty

dealing with new social situations. The research here supports this by reporting that children who are high on the Inhibition scale are more likely to have lower scores in the area of social skills. Martin and Bridger also indicated that individuals who scored high on the measure of Impulsivity were more difficult to live with and had a harder time socializing. Again this study supports this by finding that preschoolers who score high on the Impulsivity scale are also more likely to have lower social skills score. In sum, the results of this study extend findings of other studies downward to the preschool population.

Like Bracket et al. (2004), results of this dissertation also found gender differences in the variable, emotional intelligence. This study replicates Bracket et al. findings. Females had higher EI scores than males in the sample. Indeed, in this study, gender accounted for a greater percentage of unique variance in predicting social skills than did emotional intelligence. It was only after gender was statistically controlled for that the relationship between emotional intelligence and social skills became significant.

Limitations of the Study

Results of this study should be interpreted cautiously because of limitations of the sample. First, the sample was highly specific and relatively small. The preschoolers used in this study came from a very small geographic area of Suffolk County, a county located on Long Island in New York. Next, the majority of the children in this sample were Caucasian, and results might have differed if the study was conducted with a more diverse population. Lastly, these children mainly came from middle income families. Therefore, the external validity of the study may be limited to preschool children with similar demographic and socio-economic experiences. Unfortunately research that has investigated the relationship between the study variables and socioeconomic status has been conflicting. Some researchers have indicated that socioeconomic status (parent's education, occupation, household income, and ethnicity) has played a significant role in

emotional intelligence and social skills (Holmes, 2008; Klein, 2005; & Ramsey, 1988) whereas other researchers have not found a significant relationship (Briody, 2005; Jacques, 2009). Therefore further studies need to be conducted looking at these variables with a more diverse subject sample.

Another limitation of the study was the measure used to assess emotional intelligence. As noted earlier, there is no standardized comprehensive measure of emotional intelligence that can be used with the preschool population. The measure I chose to use was from an unpublished dissertation by Sullivan (1999). Not using a well researched standardized measure to assess emotional intelligence may have lead to several problems for this study. The *Teacher/Parent Rating Scale for Emotional Intelligence* (T/PRSEI) was only previously used once before the administration for this study; therefore, the reliability and validity of the procedure was never reassessed and replicated. Since the results of Sullivan's (1999) study have never been duplicated, the T/PRSEI may be a questionable measure of emotional intelligence. However, the fact that the T/PRSEI scores from this dissertation study were in the predicted direction suggests that this instrument may well be a measure of emotional intelligence. In addition, there are no other measures of emotional intelligence for preschoolers with which to compare the T/PRSEI. Finally, since this measure was not standardized, it will be difficult to generalize the results of my study across different samples.

Since it was discovered that emotional intelligence contributed little to the variability in a preschooler's social skills (accounted for 1% of the unique variance), several questions have arisen. First, is it worthwhile to study emotional intelligence in this young age group? Research has shown that emotional intelligence is developmental and progresses naturally with age (Berk, 1994; Malatesta, Calerer, Tesman, & Shepard, 1989; Mayer, Caruso, & Salovey, 1999; & Mayer, Salovey, Caruso, 2004b). Lopes et al. (2004) investigated the fourth branch of Mayer and Salovey's (1997) model and reported

that this branch (Reflective Regulation of Emotions) appears to be the most important for social interaction and positive social outcomes. According to Mayer and Salovey this branch of emotional intelligence is the last branch to develop. Therefore a limitation of this study could be the participants' ages. Next, the low unique variance may be attributed to the questionable measure (discussed above) used to investigate emotional intelligence in this study.

Next, this was a correlational study and thus one cannot conclude that any of the predictors (emotional intelligence and temperament) caused the dependent variable (social skills). In order to establish causation, one would have to manipulate emotional intelligence or temperament and determine the effect of this manipulation on social skills. I discuss possible manipulations in the section on future research and in the next section.

Last, having the teachers complete all the behavior assessments on each participant at one time may have contributed to a halo effect. According to Cooper (1981) a halo effect is a pervasive cognitive bias in subjective measures of performance and/or behavior. This bias operates to initiate the covariances of different measures by the same rater relative to those that would have occurred if the bias were absent. It is possible then that the teacher who perceives a student as "good" would provide that student with mostly high/good ratings of his or her behavior across all dimensions, even though the true quality of his or her behavior may vary across those dimensions.

Implications for School Psychologists

This study provides clues as to why some children easily learn social skills and master their social environments, while other children have difficulty learning pro-social abilities. Knowledge about what accounts for the variability in children's social skills may help School Psychologists to tailor interventions to assist the child in enhancing his/her social skills. Enhancement of social skills is important because children who have poor social abilities are at a greater risk for many difficulties later on in life: academic,

behavioral, and social (Agostin & Bain, 1991; Green, Forehand, Beck, & Vosk, 1980, & Vinnick & Erickson, 1994). Research by Merrill (2002) discovered that improving a child's social skills at an early age can help improve learning and behavioral difficulties as well as decreases the likelihood of future behavior problems. Finally, Kazdin (1987) indicated that children who fail to develop and learn these critical social skills appear to be more resistant to intervention over time.

This present study discovered that both a child's temperament traits (Inhibition and Impulsivity) and level of emotional intelligence account for the variability in their social skills. As research has indicated a child's temperament is often stable across their lifespan and cannot be changed (Martin & Bridger, 1999). Although this is true, skills (impulse control, attention, task persistence, eye contact) that are deficits in the child's temperament traits that can be taught and learned (Barkley et al., 2000; Drew et al., 2002; Grossman et al., 1997; Purdie, Hattie, & Carroll, 2002; Semrud-Clikeman et al., 1999) may in turn help their level of social skills.

Next, knowing a child's temperament will help professionals choose different strategies and interventions to work on social skills. Research by Sheeber and Johnson (1994) found that when interventions for behavior problems were matched with the child's temperament, there were reductions in mother-rated child behavior problems, F (2, 34) = 4.72, $p < .05$, and disruptions in family lifestyle, F (2, 32) = 5.92, $p < .001$. This study investigated the efficacy of a temperament focused psycho-educational intervention program with 40 mothers of difficult preschoolers that ranged in age from 3 to 5. The investigators divided participants into two groups, a treatment group that received a temperament-focused parent training program and a control group. These positive gains noted above were maintained at a 2-month follow up. Diamond, Bowes, and Robertson (2006) obtained similar results when they investigated safety related intervention strategies and the relationship with child temperament characteristics. Here 40 middle

class mothers of 24-26 month olds completed temperament questionnaires and reported on their intervention strategy through a structured interview. Results showed that control interventions (i.e., issuing a prohibition and asserting power) worked best with active and intense children, $r = -.375$, $p < .05$, and education interventions (i.e., teach about dangerous situations) worked best with children who are persistent and stay on task, $r = .357$, $p < .05$

Knowledge that lower social skills are associated with lower emotional intelligence scores, may also help School Psychologists' practice. Although there is little research on teaching emotional intelligence skills, it is possible that teaching emotional intelligence skills to children who have deficits in social skills would lead to an improvement in their social skills (Lopez et al., 2004). For example, teaching children how to label and recognize emotions both in themselves and others (an emotional intelligence skill) may help encourage a child to recognize that a peer is happy or sad. Knowledge of the peer's emotion may encourage that child to initiate a relationship (a social skill) with that happy or sad peer. If the peer is happy the child may initiate play or if the peer is sad the child may provide help. Dodge et al. (1984) reported that socially competent children are able to discriminate emotions in others.

Research by Sheeber and Johnson (1994) and Diamond et al. (2006) support Thomas and Chess's (1977) theory of goodness of fit that postulates that when the intervention fits the child's temperament and needs, learning and change occurs. This supports the idea that when parents' and teachers' accommodations and interventions support children's individual differences (be it socially, emotionally, or temperamentally) successful change often occurs.

Future Research

The significant results of this investigation and the limited number of empirical studies that have investigated the relationship between social skills, emotional

intelligence, and temperament suggest that further research is needed in this area. Future studies should examine the possible causal relationships among these variables. Future investigators could identify skills/tasks from the Emotional Intelligence (EI) literature. Using children who scored similarly on social skills, the investigators could teach the EI tasks to half of the children and not to the other half of the children. They could then reevaluate all the children's social skills. Other investigators could conduct similar studies using other EI tasks. Still others could conduct studies that addressed skill limitations of children who score high on inhibition or impulsivity and see if teaching corrective tasks to these children would result in better social skills relative to those of control groups.

Next, future research should attempt to mitigate the possible halo effects that might be present in this study. This could be done by asking the teachers to complete each behavior measure on separate days (i.e., teachers should complete measure 1 on all participants on day 1, measure 2 on all participating students on day 2, and so on until all the measures are completed by the teachers on separate days). This would reduce the possibility that ratings of an individual on one measure would influence the teacher's ratings of that same individual on another measure.

Last, future research should be done to investigate further the reliability and validity of the *Teacher/Parent Rating Scale of Emotional Intelligence,* the emotional intelligence measure constructed by Sullivan (1999) and used in this present research. Results from both Sullivan's study and this dissertation suggest that the T/PRSEI may be a potentially useful measure of emotional intelligence. Further development of this instrument is important as it is the only measure that currently exists to investigate a preschooler's level of emotional intelligence. Studies should employ larger, more diverse nationally representative samples.

Appendix A

Teacher Information Packet

Dear Teachers,

My name is Christine Hickey and I am a doctoral student in the Ph.D. Program in Educational Psychology at the Graduate School and University Center of the City University of New York. I am conducting a study that will look at the relationship between children's temperament, their ability to perceive, generate, understand, and manage emotions, and social skills. Temperament is defined as the behavioral tendencies of children. Social skills are socially acceptable learned behaviors that enable a person to interact effectively with others. Currently, there is no research that investigates this relationship.

I would like you to participate in my research project. Participation in the study will involve completing three short (approximately 5-10 minutes each) questionnaires about an individual student. You can only complete the questionnaires after the child's parent provides consent for you to do so. The procedure for the study is explained on the following pages.

Information concerning individual children will be treated as confidential. Research results will be kept in a locked file cabinet in my office that only I will have access to. I will use this information for research purposes only. At any time you can refuse to answer any questions or end your participation without any repercussions.

I may publish the results of the study, but names of people, or any identifying characteristics, will not be used in any of the publications. If you would like a copy of the results of the study, please provide me with your address and I will send you a copy in the future.

Please take time to review the following pages. If you choose to participate in this study, please let me know. Once you agree to participate in the study, informational packets recruiting participants will be sent home to each of your students. After the parent's sign consent forms and fill out their questionnaires you will then be asked to complete the questionnaire for that child.

If you have any questions before, during, or after participation in the study, please contact Ms. Hickey (Investigator) at 516-220-1937 (Phdhycster@optonline.net), or Professor Georgiana Shick Tryon (Advisor) at 212-817-8293 (GTryon@gc.cuny.edu). If you have any questions concerning your rights as a participant in this study, please contact Kay Powell, IRB Administrator at 212-817-7525 (KPowell@gc.cuny.edu).

Thank you for your consideration and possible participation in the study.

Sincerely,

Christine Hickey, MS Ed.

Teacher Information Form

Investigator: Christine Hickey, MS Ed., Doctoral Student
Educational Psychology Program
The Graduate School and University Center,
City University of New York
365 Fifth Avenue
New York, New York, 10016-4309

Purpose: In an effort to learn about the relationship between temperament, social skills, and the ability to perceive, generate, understand, and manage emotions in preschool aged children, I am asking teachers to participate in a research project.

Procedure: If a student's parent agrees and gives consent to participate in this project, you will be asked to complete three brief questionnaires. The first measure examines the student's emotional management skills (15 questions), the second examines the student's temperament (29 questions), and the third investigates the child's level of social skills (30 questions). Each form will take approximately 5-10 minutes to complete.

Possible Inconvenience: There are no known risks beyond those encountered in everyday life for participating in the study. You will only be asked to complete the questionnaires if the child's parent agrees to participate. If you want to discontinue participation after the research begins, you will be free to do so. Individual scores will be confidential. After information is received I will transfer it to data entry forms that will not mention the name of the participants. The questionnaires will remain under lock in my office.

Benefits: The information obtained will facilitate research in the area of emotional management, social skills, and temperament. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

Contact Information: If you have any questions before, during, or after participation in the study, please contact Ms. Hickey (Investigator) at 516-220-1937 (Phdhycster@optonline.net), or Professor Georgiana Shick Tryon (Advisor) at 212-817-8293 (GTryon@gc.cuny.edu). If you have any questions concerning your rights as a participant in this study, please contact Kay Powell, IRB Administrator at 212-817-7525 (KPowell@gc.cuny.edu).

Appendix B

Parent Information Letter

Dear Parents/Guardians,

My name is Christine Hickey and I am a doctoral student in the Ph.D. Program in Educational Psychology at the Graduate School and University Center of the City University of New York. I am conducting a study that will look at the relationship between children's temperament, social skills, and their ability to perceive, generate, understand, and manage emotions. Temperament is defined as the behavioral tendencies of children. Social skills are socially acceptable learned behaviors that enable a person to interact effectively with others. Currently, there is no research that investigates this relationship.

I would like you to participate in my research project. Participation in the study will involve completing a short (approximately 5-10 minutes) questionnaire about your child. Next, I ask you to allow your child's teacher to complete three measures. The procedure for the study is explained on the following pages.

Information concerning your child will be treated as confidential. Research results will be kept in a locked file cabinet in my office that only I will have access to. I will use this information for research purposes only. At any time you can refuse to answer any questions or end your participation without any repercussions.

I may publish the results of the study, but names of people, or any identifying characteristics, will not be used in any of the publications. If you would like a copy of the results of the study, please provide me with your address and I will send you a copy in the future.

Enclosed is a consent form. Please take time to review the following pages. If you choose to participate in this study, please sign and return the consent form in your child's backpack at your earliest convenience. If you have any questions before, during, or after participation in the study, please contact Ms. Hickey (Investigator) at 516-220-1937 (Phdhycster@optonline.net), or Professor Georgiana Shick Tryon (Advisor) at 212-817-8293 (GTryon@gc.cuny.edu). If you have any questions concerning your rights as a participant in this study, please contact Kay Powell, IRB Administrator at 212-817-7525 (KPowell@gc.cuny.edu).

Thank you for your consideration and possible participation in the study. Please keep this letter. I will return a copy of the consent form with the questionnaire packet.

Sincerely,

Christine Hickey, MS Ed.

Appendix C

Incentive Flier

Participate in a study about

Temperament and Emotional Intelligence

and you could . . .

Win a $50 VISA Gift Card!

If you are eligible to participate, you will be asked to complete a questionnaire. When you return the questionnaire you will be entered into the drawing!

Approximately 1 in100 chance of winning.

Check out the attached materials. And, if you want to participate, send back the consent form in your child's backpack

Appendix D

Parent Consent Form

Investigator: Christine Hickey, MS Ed., Doctoral Student
Educational Psychology Program
The Graduate School and University Center,
City University of New York
365 Fifth Avenue
New York, New York, 10016-4309

Purpose: In an effort to learn about the relationship between temperament, social skills, and the ability to perceive, generate, understand, and manage emotions in preschool aged children, I am asking you to participate in a research project.

Procedure: If you agree to participate in this project, you will complete a brief questionnaire. This measure will be sent via your child's backpack after consent is obtained from you. The questionnaire asks about information on your child and looks at your family member's education and occupations. The form will take approximately 5-10 minutes to complete.

If you decide to participate in this project, you will also be asked to allow your child's teacher to complete three measures. The first measure will look at your child's emotional management (15 questions), the second measure will investigate the child's temperament (29 items), and the third measure will look at your child's social skills (30 questions). These forms will be given to your child's teacher after I receive your consent.

Possible Inconvenience: At this time there are no known risks beyond those encountered in daily living for participating in the study. Information retrieval from you and your child's teacher will be gathered only if you agree to participate and a consent form is signed. You may discontinue participation at any time. Individual scores will be confidential. After information is received I will transfer it to data entry forms that will not mention the names of the participants. The questionnaires without identifying information will remain under lock in my office.

Benefits: The information obtained will facilitate research in the area of emotional management and temperament. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

Contact Information: If you have any questions before, during, or after participation in the study, please contact Ms. Hickey (Investigator) at 516-220-1937 (Phdhycster@optonline.net), or Professor Georgiana Shick Tryon (Advisor) at 212-817-8293 (GTryon@gc.cuny.edu). If you have any questions concerning your rights as a participant in this study, please contact Kay Powell, IRB Administrator at 212-817-7525 (KPowell@gc.cuny.edu)

Parent Consent Form

This project has been explained to me and I understand that participation is voluntary. I have been allowed to ask questions and those questions have been answered to my satisfaction.

I understand that if I do not want to participate, I can deny consent and there will be no repercussions. I understand that if I give my consent and I change my mind, I can withdraw consent at any time without repercussions.

I have read these forms, understand the project, and give my consent to participate.

_____ _____

Signature of Parent/Guardian Date

_____

Name of Child

_____ _____

Signature of Investigator Date

Appendix E

Parent Questionnaire

Directions:

Please complete **PAGE 2** and **PAGE 3** if one of the following applies to your current marital situation:

- you are married and living with your spouse
- you are separated/divorced, not employed, and receiving support payments from your present or former spouse
- you are widowed and living on the income of your spouse's estate.

Please complete **PAGE 4** if one of the following applies to you:

- you are single and never married
- you are separated or divorced and employed
- you are widowed and not living on the income of your spouse's estate

PAGE 2

Your name: First:_____ Last:_____

Phone Number: Home: ( ) Work: ( )

Name of student: First:_____ Last:_____

Gender of student: _____ male _____ female Birth date of student: _____

Name of student's teacher:_____

My child is in a: _____ regular education classroom (classroom with typically developing children only) or _____ integrated classroom (classroom with typically developing children and special education children)

Please respond to the following questions by placing an X on the line next to the response that is the most appropriate choice for you. Be sure to mark only one response after each sentence.

1. My gender is _____ male _____ female.

2. My child's ethnicity is: ___White, non-Hispanic; ___Hispanic; ___African American; ___Puerto Rican; ___American Indian; ___Other (please specify)_____

3. I am currently employed _____ Yes _____ No

4. My (current/former) spouse is currently employed _____ Yes _____ No

5. My current job title is: _____

6. My (current/former) spouse's job title is/was _____

7. Currently, my spouse is retired _____ Yes _____ No

My spouse's occupation was:_____

8. The highest level of schooling I have completed is:

_____ less than 7th grade.
_____ junior high school (9th grade).
_____ some high school (10th or 11th grade).
_____ high school graduate.
_____ some college or specialized training.
_____ college or university graduate.
_____ graduate degree.

9. The highest level of schooling my spouse has completed is:

_____ less than 7th grade.
_____ junior high school (9th grade).
_____ some high school (10th or 11th grade).
_____ high school graduate.
_____ some college or specialized training.
_____ college or university graduate.
_____ graduate degree.

10. My marital situation is:

____ married and living with my spouse.
____ separated/divorced, not employed, and receiving support payments from my present or former spouse.
____ widowed and living on the income of my spouse's estate.

11. My date of birth: _____/_____/_____.

12. My spouse's date of birth: _____/_____/_____.

PAGE 4

Your name: First:_____ Last:_____

Phone Number: Home: ( ) Work: ( )

Name of student: First:_____ Last:_____

Gender of student: _____ male _____ female Birth date of student: _____

Name of student's teacher:_____

My child is in a: _____ regular education classroom (classroom with typically developing children only) or _____ integrated classroom (classroom with typically developing children and special education children)

Please respond to the following questions by placing an X on the line next to the response that is the most appropriate choice for you. Be sure to mark only one response after each sentence.

1. My gender is _____ male _____ female.

2. My child's ethnicity is: ___White, non-Hispanic; ___Hispanic; ___African American; ___Puerto Rican; ___American Indian; ___Other (please specify)_____

3. I am currently employed _____ Yes _____ No

4. My current job title is: _____

5. The highest level of schooling I have completed is:

_____ less than 7th grade.
_____ junior high school (9th grade).
_____ some high school (10th or 11th grade).
_____ high school graduate.
_____ some college or specialized training.
_____ college or university graduate.
_____ graduate degree.

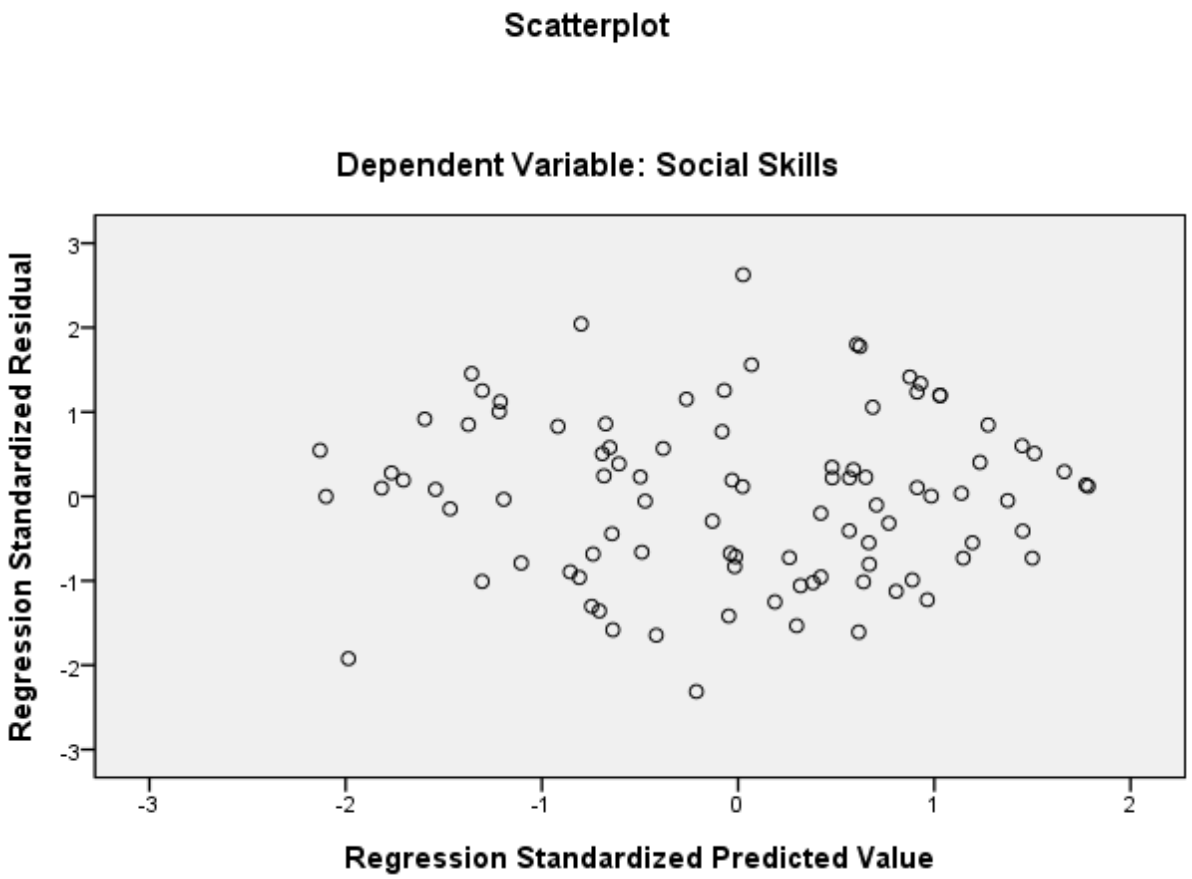
6. My marital situation is:

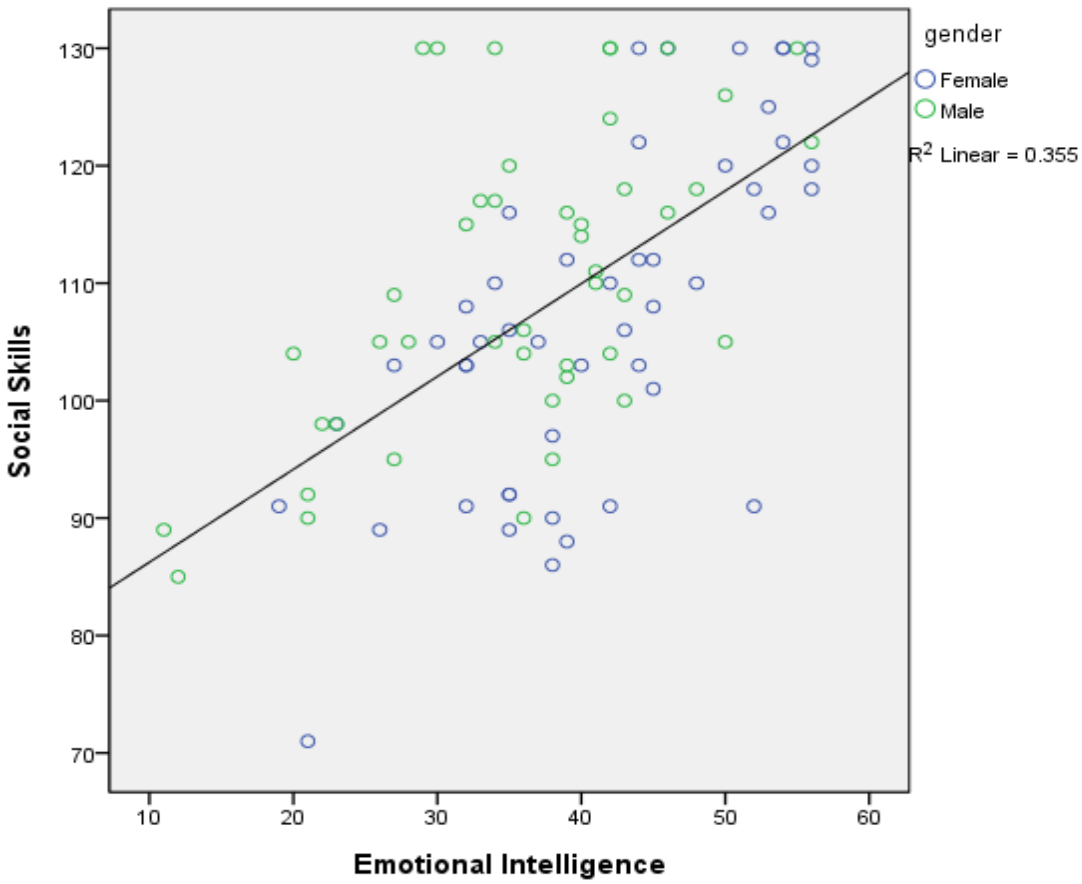
____ single.
____ separated or divorced and employed.
____ widowed and not living on the income of my spouse's estate.

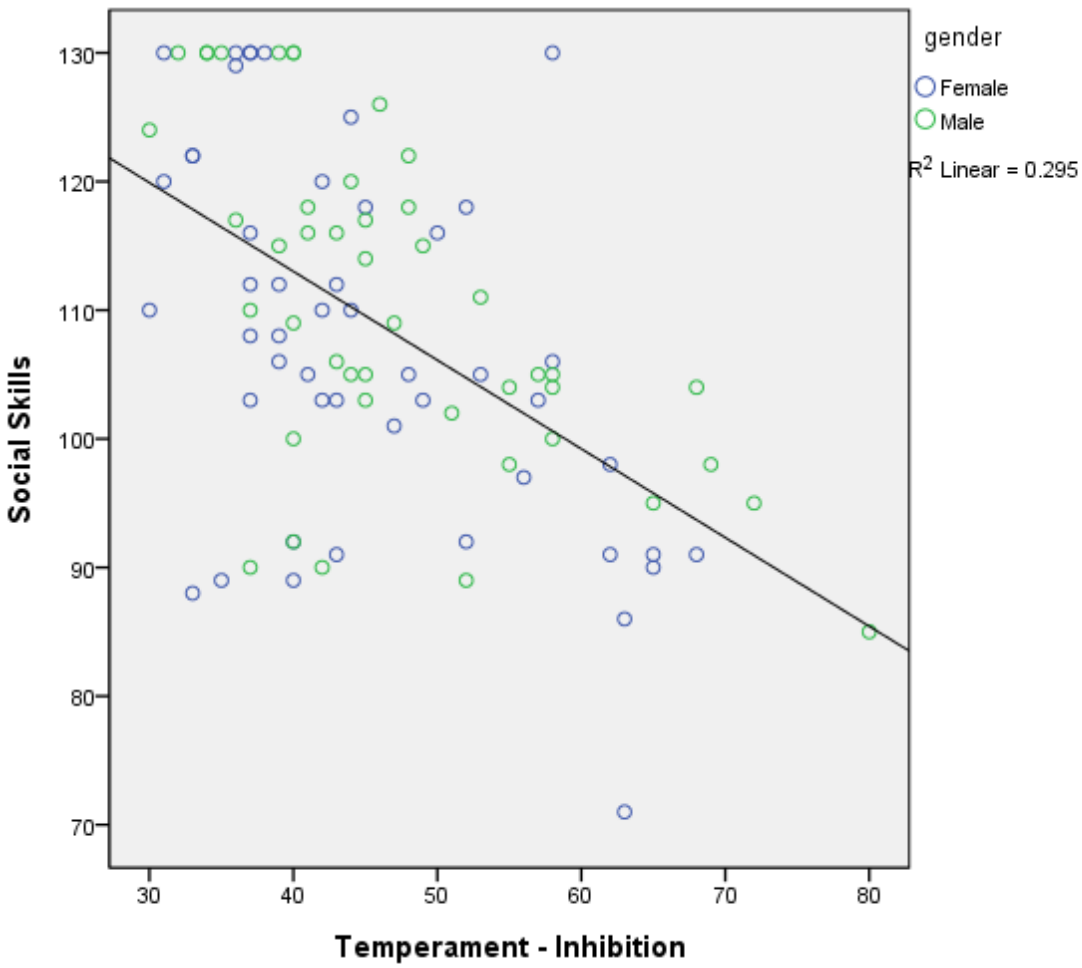
7. My date of birth: _____/_____/_____.

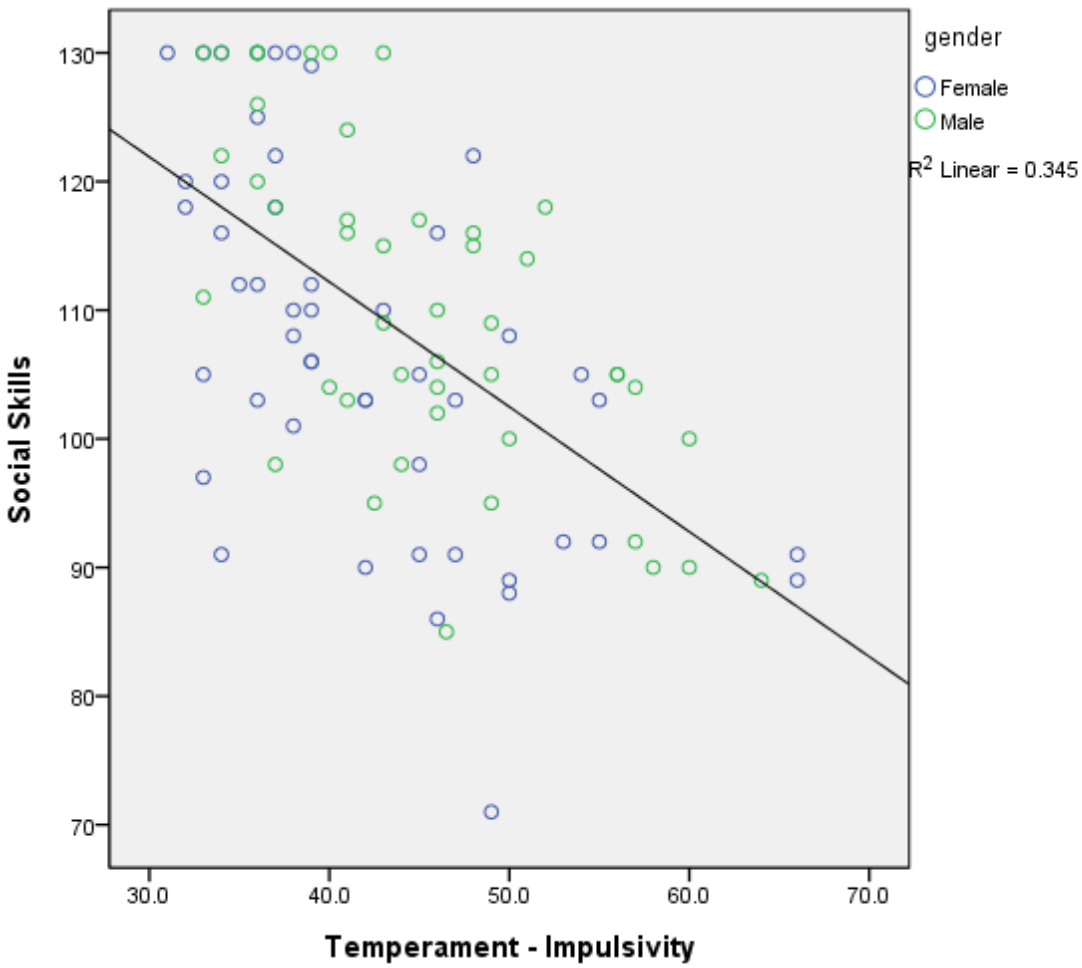
Appendix F

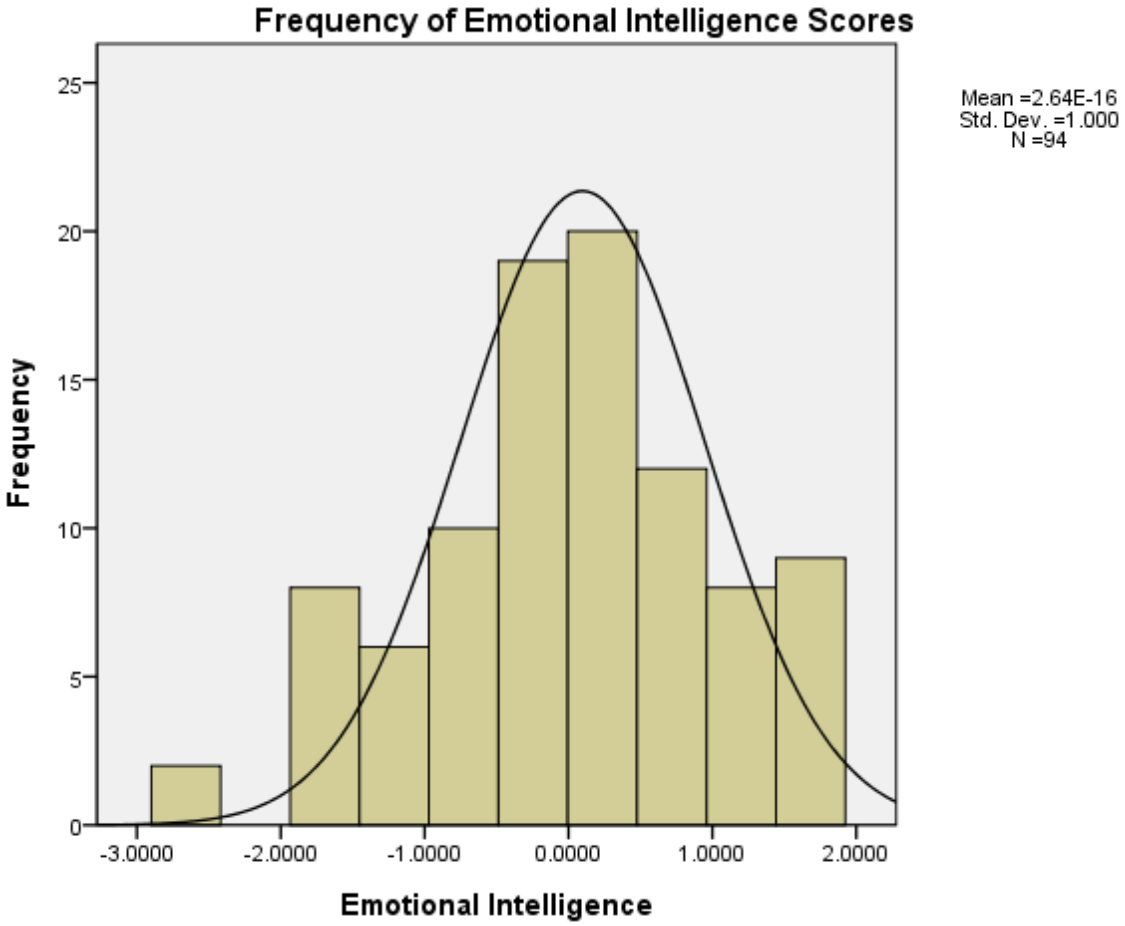
Violations of Test Assumptions

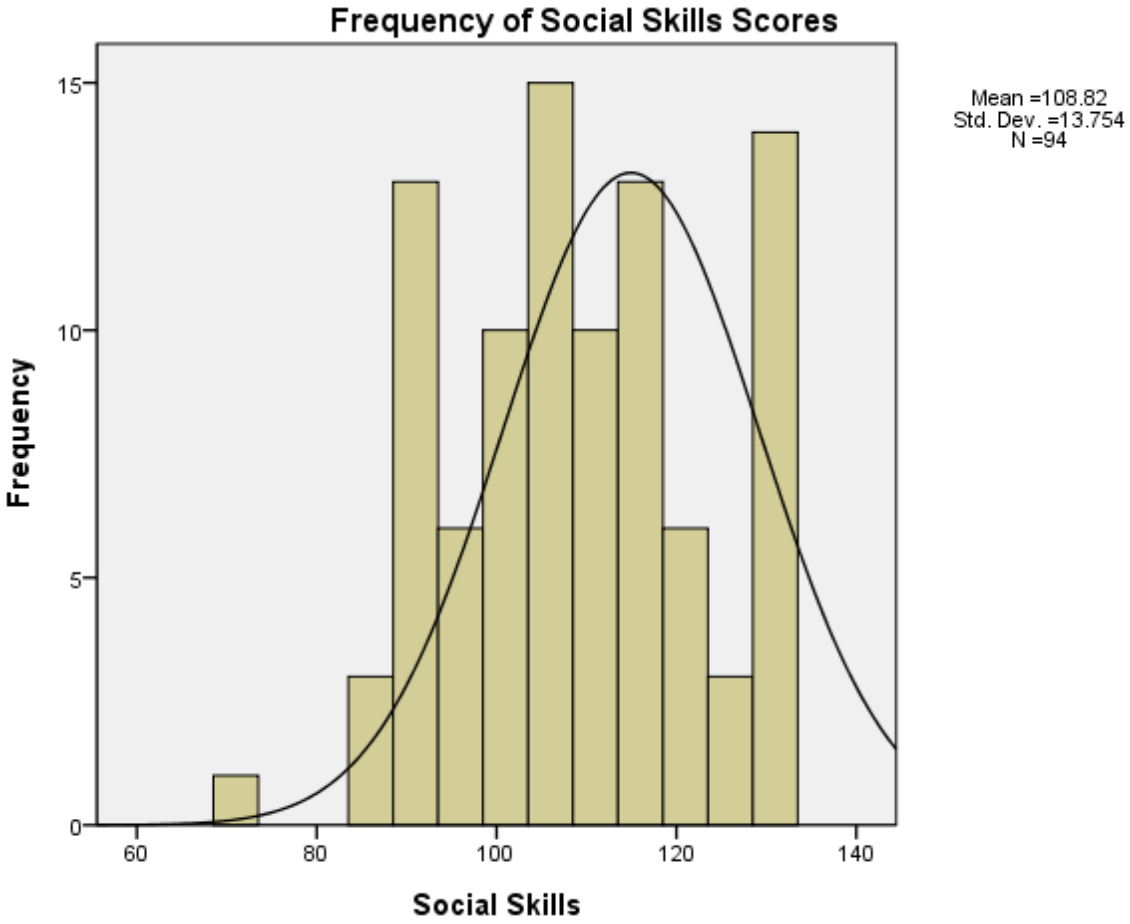


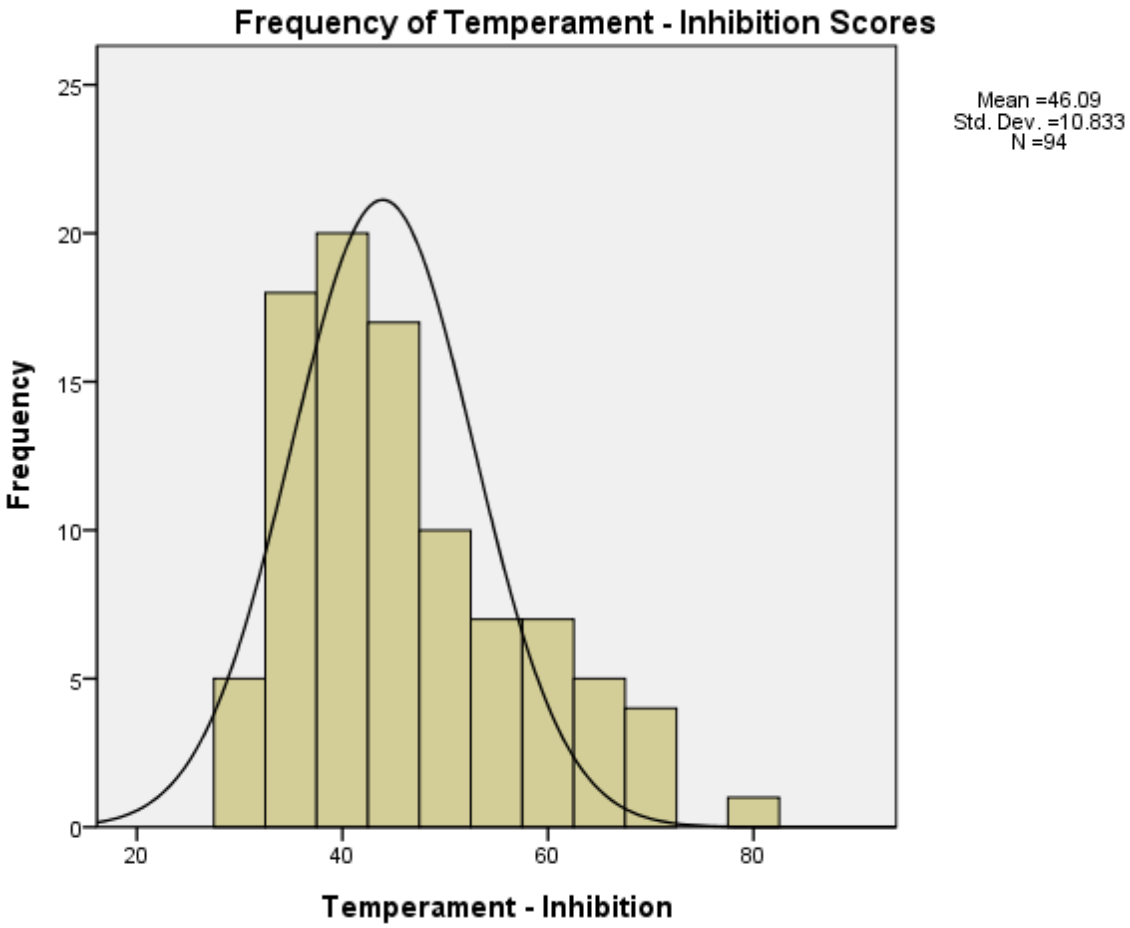

gender
Female
Male
R^2 Linear = 0.355
Social Skills
130
120
110
100
90
80
70
10
20
30
40
50
60
Emotional Intelligence

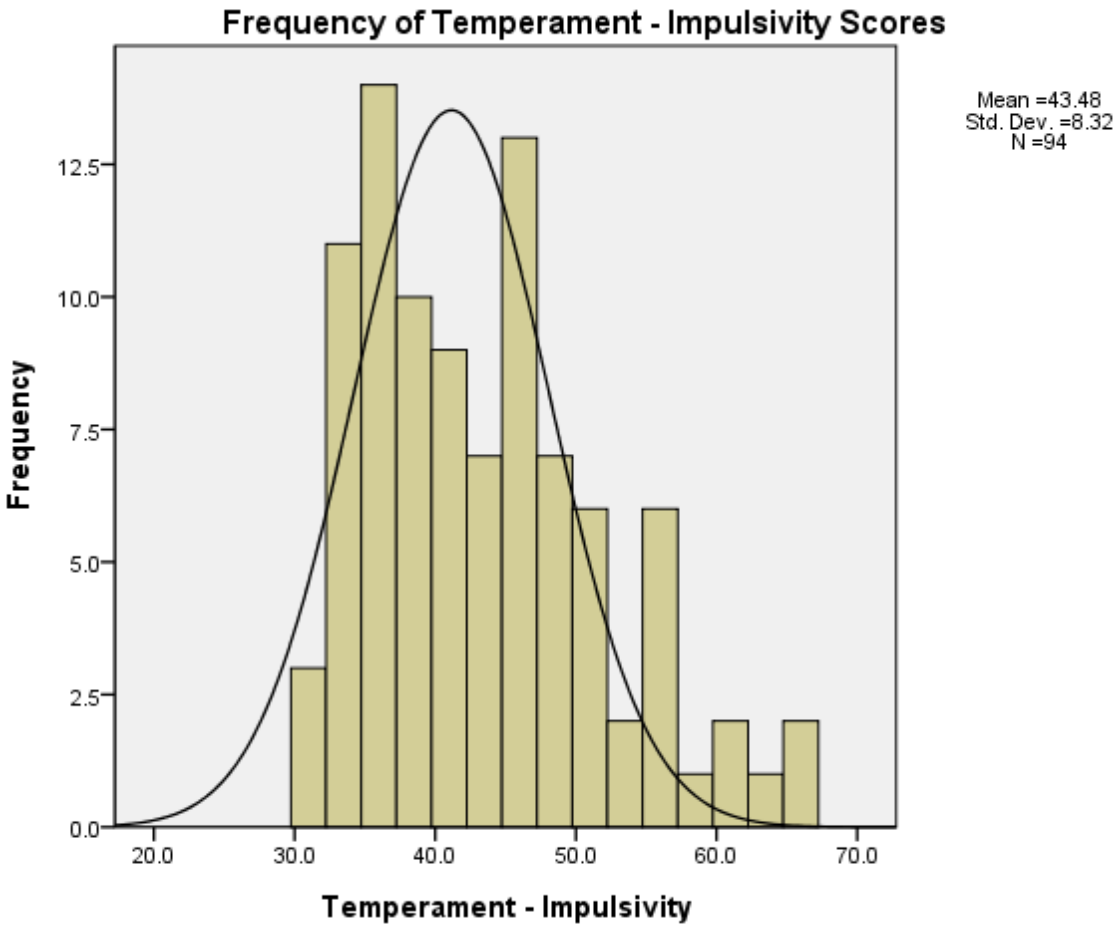

gender
Female
Male
R^2 Linear = 0.295
Social Skills
130
120
110
100
90
80
70
30
40
50
60
70
80
Temperament - Inhibition


gender
Female
Male
R^2 Linear = 0.345
Social Skills
130
120
110
100
90
80
70
30.0
40.0
50.0
60.0
70.0
Temperament - Impulsivity


Frequency of Emotional Intelligence Scores
Mean =2.64E-16
Std. Dev. =1.000
N =94
Frequency
25
20
15
10
5
0
-3.0000
-2.0000
-1.0000
0.0000
1.0000
2.0000
Emotional Intelligence


Frequency of Social Skills Scores
Mean =108.82
Std. Dev. =13.754
N =94
Frequency
0
5
10
15
60
80
100
120
140
Social Skills


Frequency of Temperament - Inhibition Scores
Mean =46.09
Std. Dev. =10.833
N =94
Frequency
25
20
15
10
5
0
20
40
60
80
Temperament - Inhibition


Frequency of Temperament - Impulsivity Scores
Mean =43.48
Std. Dev. =8.32
N =94
Frequency
0.0
2.5
5.0
7.5
10.0
12.5
20.0
30.0
40.0
50.0
60.0
70.0
Temperament - Impulsivity

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