

Spring 5-18-2018

Einstein or Columbine: Impact of School Environment on the Socioaffective Development of Gifted and Talented Adolescents

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Einstein or Columbine: Impact of School Environment on the Socioaffective Development of
Gifted and Talented Adolescents

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Education and Human Development
Curriculum and Instruction

by

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May 2018

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Dedication

Dedicated to every gifted and talented student who desperately wants to be understood, encouraged, and accepted and yearns for a place to belong and a purpose in life.

To Marilyn Palfrey, who recognized my giftedness and created a safe and loving space for her students, especially those who had no other place to call home.

To Dr. Jeanette Plauché-Parker, whose brilliance, wisdom, and determination inspired my career in academia.

Acknowledgements

*The world is an unending flux of becoming, a fluid state of fluxes of impermanent 'fluids' ever moving.
~Buddhism*

The doctoral experience is often described as a journey or a quest replete with struggle, growth, and progress. However, these metaphors evoke images of linear movement suggesting an *end*—the receiving of credentials, the transformational education, or the constructing of a dissertation—instead of the *becoming*: my multifaceted and transformative doctoral process has been the organic ebb and flow towards wisdom.

In conducting this dissertation study, I viewed the doctoral process through an emergent lens, not as an end or a means to an end, but embracing it as the *now*, to be truly present, to understand that research weaves its own path and tells its own story. My study became about slowing down, and opening up, allowing the knowledge to *become* a part of me. My research was constructive and organic, where the purpose was to facilitate change (constructive) with an altruistic aim, benefiting the discipline and the wider community (organic). Doll (2000) articulated it best, “Reading with the third eye, listening with the inner ear, we can, perhaps, at last, come to regard wisdom, not knowledge, as education’s only real concern” (p. xvi).

The process of completing this doctoral dissertation would not have been possible without the help and support of so many individuals. First, I would like to thank my committee members, Richard Speaker, Jr., Patricia Austin, Marc Bonis, and Paul Bole, who encouraged me to follow my passion and supported me with invaluable feedback, continuous encouragement, insightful wisdom, and valuable edits. I also want to recognize my academic cohort of friends, Laura Adelman-Cannon, Gena Asevado, Jacques Detiege, and Tiffany Lewis, for their problem-solving and probing conversations that helped me to refine and develop this study and for giving me the motivation to persevere.

I am eternally grateful to my students and their families who allowed me into their hearts and souls and motivated me each and every day to develop a curriculum to help twice-exceptional and multiply-classified students. Additionally, my sincere gratitude goes out to my dear friends, CaTina Walker, Dani Vizinat, Daphne Lowe, Diana Macku, Karen James, Michelle Day, Melissa Murry, and Toni Barth, for your unwavering support, encouragement, motivation, and inspiration throughout my academic journey.

A special thank you to Marc Bonis, whose humor, compassion and patience is incomparable, for his brilliance in statistical analysis and study design and his sincere investment in my success. I am eternally thankful for Pat Austin, whose grammatical perfectionism rivaled the best publishers and editors, for her fierce editing and questioning that helped refine my work until it was the absolute best. Thank you for being a loving confidante and trusted advisor for my academic and personal life. To Richard Speaker, Jr., who helped me find my speaking voice, mentored me as a university co-teacher, and encouraged my independent exploration of new topics in education. Thank you for giving me the freedom to design a unique study merging fields in education, psychology, and human development. I would like to express my appreciation for Richard and Penny Speaker who rekindled my love for travel and educational adventures.

Words cannot express my appreciation for my family, Larry, LaNell, Valerie, Hannah, Abby, Ellen, Lanise, and Renee'. Your amazing support system of love and encouragement helped me find my inner strength and peace throughout the chaos of the dissertation study. For my soothsayer, Chris Desjardins, who foresaw my success long before I could envision it for myself. Her gentle faith, patience, and wisdom are unequaled. I would also like to thank René,

who often understands me better than I understand myself, for her unconditional love and timeless wisdom.

Finally, thank you to the teachers and student participants, who generously gave a great deal of their time and effort to this important research. Your honest reflections and heartfelt desire to find solutions for socioaffective developmental needs are beacons of hope to your students. Thank you to the superintendents and administrators who opened their schools, encouraged this research, and desired to construct effective student support systems. Lastly, I am so grateful to the University of New Orleans for selecting my study for the doctoral fellowship. This study would not have been possible without your generous financial support.

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Abstract

Why do some gifted minds thrive in life while others fail to fulfill their potential? The spotlight on violence perpetrated by bright individuals questions what went wrong, could it have been prevented, and whether schools are meeting the needs of gifted individuals. Thus, it is important to examine the impact of participation in various gifted and talented programs on the socioaffective development of gifted adolescents. The purpose of this study was to understand (1) if gifted individuals' social and emotional development were similarly developed as their academic and creative abilities, and (2) if a particular school environment led to differences in psychological developmental profiles. Using six psychometric scales, this quasi-experimental study examined the socioaffective development of 343 gifted and talented students (ages 16-18) enrolled in arts-integrated charter, creative arts charter, and public school programs in an ethnically diverse moderate-size city in the southeastern United States. Students' performances on psychometric scales were compared over time and by type of program. Participants took pre- and post-tests over the first semester of an academic school year with BarOn EQ-I: YV assessing social and emotional development. Based on these assessments, quantitative differences in growth on psychological scales were examined. Change scores between schools were also compared. School artifacts provided insight as to environmental qualities of each school environment.

Major findings include gifted and talented adolescents showed significant weakness in intrapersonal abilities and general mood compared to normative age-mates. Gifted females also showed significant weakness in interpersonal abilities and overall socioaffective development. Gifted and talented students displayed strengths only in adaptability (problem solving and flexibility). Study findings support the theory that giftedness heightens vulnerability to adjustment problems. Results also indicated that gifted and talented students in inclusive public school environments demonstrated greater overall socioaffective development across most psychometric scales than charter schools. Results of analysis found gifted and talented students in all five environments showed no significant change in scores on BarOn EQ-i:YV psychometric scales from Time 1 to Time 2, indicating that no particular school environment impacted social development and emotional intelligence. Future research is needed to confirm the finding that gifted and talented females in this study showed weaknesses in every psychometric scale except for adaptability. Additional research is needed to further understand social and emotional development among minority, low income, and female gifted and talented students, particularly those enrolled in selective and exclusive environments.

Keywords: socioaffective development, gifted and talented programs, gifted and talented development, social and emotional intelligence

Chapter One: Introduction and Overview of the Study

The function of education, therefore, is to teach one to think intensively and to think critically. But education which stops with efficiency may prove the greatest menace to society. The most dangerous criminal may be the man gifted with reason, but with no morals.... We must remember that intelligence is not enough....The complete education gives one not only power of concentration, but worthy objectives upon which to concentrate. The broad education will, therefore, transmit to one not only the accumulated knowledge of the race but also the accumulated experience of social living. ~Martin Luther King, Jr.

Why are some gifted and talented children not always successful in adulthood despite high IQ scores and creative talents? An extensive body of research and literature establishes the social and emotional needs of gifted youth. The National Association for Gifted Children's Programming Standards (NAGC, 2010a) emphasize the importance of providing affective development linked to socio-emotional growth in self-understanding, social awareness and competence, cultural awareness and competence, and ethics. All of the standards (Learning and Development, Assessment, Learning Environments, Curriculum Planning and Instruction, Programming, and Professional Development) include a focus on meeting the concomitant needs of cognitive and socioaffective development. Most definitions of giftedness extend beyond academic abilities to include non-intellectual characteristics, including environmental elements, thereby reinforcing the notion that giftedness is a complex intertwining of components in which development can be promoted (Csikszentmihalyi, Rathunde, & Whalen, 1997; Feldhusen, 1992, 1994; Gagne', 1991, 1995; Lee & Oszewski-Kubilius, 2006; Piirto, 1994; Renzulli, 1978; Tannenbaum, 1986; Treffinger & Feldhusen, 1996). Some theorists posit that non-intellectual characteristics, such as social/ interpersonal intelligence (Gardner, 1983, 1999), emotional intelligence (Goleman, 1995; Piechowski, 1979, 1991), and wisdom (Sternberg, 2000) are independent areas of giftedness. Although referred to as "non-intellectual," they are an integral

part of the intellect. The affective domain's symbiotic relationship with the cognitive component is necessary for giftedness and creativity.

Several unique personality and intellectual characteristics distinguish gifted individuals; these may appear as strengths, but there is the potential for social and emotional problems to accompany them (Clark, 2002; Seago, 1974; Webb, 1994). In the affective domain, gifted adolescents face special intrapersonal, interpersonal, and environmental problems. Gifted students develop asynchronously in multidimensional layers (intellectual, psychological, emotional, physical); they are exceedingly mature in some areas and immature in others, which often results in intense frustration, extreme sensitivity, and emotional outbursts. The higher an individual's intellectual capacity, the more extreme the asynchrony will be (Goerss, 2005; Schwartz, 2013; Webb & Kleine, 1993; Webb, Meckstroth, & Tolan, 1989). Although many gifted and talented individuals thrive in their school and community environments, some struggle due to emotional intensity, motivation and achievement issues, lack of peers and isolation, identification problems, sensitivity to expectations and feelings, perfectionism, and other difficulties. It is estimated that 20% of gifted and talented students drop out of high school and more than 25% have social and emotional difficulties, which is more than double in the general population of students (Gallagher, 1991; Grobman, 2006; Jackson & Peterson, 2003; Mendaglio & Peterson, 2007; Moon, 2009; Neihart, Reis, Robinson, & Moon 2002; Peterson, 2008, 2009; Peterson & Ray, 2006; Peterson & Rischar, 2000; Renzulli & Park, 2000, 2002; VanTassel-Baska, Cross, & Olenchak, 2009; Webb, Amend, Webb, Goerss, Beljan, & Olenchak, 2005; Winner, 1996).

Teachers and school environments can be highly influential in socioaffective development, especially when educators and counselors attend to the curricular and

environmental factors that support positive development (Blatt & Kohlberg, 1975; Britner & Pajares, 2006; Kohlberg, 1966; Kohlberg, Hickey, & Scharf, 1972; McKenzie, 2005; Schlaefli, Rest & Thoma, 1985; Turiel, 1966; Usher & Pajares, 2006). However, if the educational environment is not well suited or damaging, the consequences can be nearly unbearable (Davis & Rimm, 1994; George, 1992; Robinson, 2008). Therefore, an interesting question is whether other characteristics of gifted and talented students, including emotional or social intelligence, are similarly advanced as their intellectual capabilities. Furthermore, what are the long-term effects of participation in certain gifted and talented programs on the socioaffective development of these adolescents? Results of this study provide information on whether a particular school environment led to any differences in students' social and emotional developmental profiles. This study illuminates the issue of socioaffective development in gifted and talented students and whether a specific environment stimulates growth in these non-intellectual developmental areas.

Purpose of the Work

The purpose of this study was to examine gifted and talented students' developmental level of emotional and social abilities, key characteristics often cited for this unique population. Specifically, this study compared five groups of academically gifted and creatively talented students with heterogeneous groups of students on these traits to determine whether gifted and talented students' social and emotional development is equivalent to their academic and creative abilities. This study also examined the impact of gifted and talented programs on the social and emotional development of these adolescents. Students' performances on the psychometric scales measuring social and emotional intelligence were compared over time and by the type of program (charter school for the creative arts v. public academic and talented programs v. charter arts-integrated academic program).

Significance of Study

Central to this study were the conflicting theoretical arguments and research findings about psychosocial development and its intersection with giftedness. Empirical and theoretical evidence supports the opposing views on the psychological, emotional, and social development and wellbeing of gifted and talented individuals. The first theory posits that these individuals are generally more developmentally advanced or better adjusted than their non-gifted age mates, possessing a greater understanding and awareness of self and others, which shields them from maladjustment. The second interpretation argues that giftedness increases vulnerability; gifted and talented individuals are more at-risk for development problems and adjustment difficulties. The issues of social and behavioral development and emotional and affective development of the gifted and talented create a contradiction in the field of gifted education: that (a) giftedness enhances adjustment and resiliency or that (b) giftedness heightens vulnerability to adjustment problems. There are four predominant perspectives concerning these issues in the literature, with conflicting theories and contradicting research studies to support both views. The gifted and talented are considered as (a) having higher emotional capabilities or (b) being more vulnerable emotionally than their age mates, or (c) being better adjusted to social interaction, or (d) in need of social support due to greater socioaffective difficulties than their non-gifted peers.

Previous research on gifted and talented individuals' socioaffective abilities is limited and narrow in scope. The few studies conducted focus on mostly affluent, successful, high achievers participating in selective university-based programs. These studies did not fully examine the diverse gifted populations and school environments typical to mid-sized metropolitan cities and surrounding suburban areas. In addition, a limited number of studies examine socioaffective development in conjunction with school environments, and even fewer

investigate multiple school environments. This study provided a more accurate representation of gifted and talented programs in a variety of typical school settings. With access to multiple school sites containing varied student populations and gifted and/or talented program models, this study revealed a more complete psychological developmental profile of the spectrum of gifted individuals (high poverty, underachievers, minority, twice exceptional, learning disabled, emotionally disturbed, and talented/creatively gifted) as compared to normative groups.

Theoretical Frameworks

Constructs such as social and emotional development and beliefs about intelligence, creativity, and giftedness provide relevant information on gifted and talented students' socioaffective and psychosocial development and the impacts of school environment on these domains.

Social and emotional development. In his social cognitive theory, Bandura (1986) argued that innate traits are not the only motivators of behavior and that individuals are not simply motivated to act in certain ways due to behavioral expectations, but that the triadic reciprocity of behavior, environment, and cognitive and personal factors are all interconnected and interdependent. Individuals are simultaneously influenced by their environment and influencing their environment. By altering and adapting to their environment and creating mental models of outcomes, individuals learn by cognitive processes and reasoning ability, from trial and error of their actions, and vicariously through the actions of others. Bandura advocated for studying personal, cognitive, and environmental influences together in order to understand how each is contingent on the other. Goleman (1995) outlined five major elements of emotional intelligence: self-awareness; handling feelings; self-motivation, mastery and control; empathy; and social competence. Salovey and Pizarro (2003) expanded his definition to include

perceiving and expressing emotion (accurately and adaptively); emotional knowledge (ability to understand emotion); feelings to facilitate thought; and regulating emotions (self and others).

Salovey and Pizarro also explained emotional intelligence as a theoretical framework that merges the cognitive and affective domains of development.

Giftedness and social and emotional development. Expounding on Salovey and Mayer's (1990) definition of emotional intelligence, Goleman (1995) argued that emotional intelligence is not an inherent characteristic of gifted and talented individuals but rather a distinctly separate area of giftedness. In the field of gifted and talented education, Dabrowski's overexcitabilities (Dabrowski & Piechowski, 1977; Piechowski, 1979) were defined as a part of giftedness, with emotional overexcitability being one. However, Piechowski (1991) adjusted the theory, arguing that emotional giftedness grows out of emotional overexcitability only when individuals have a desire to help others and to change themselves. Gardner (1983, 1999) combined emotional intelligence with social intelligence as *personal intelligences* and defined it as the ability to regulate oneself through accurate self-understanding of emotions and capabilities (intrapersonal) and the ability to interact with others by understanding their feelings, emotions, intentions, and motivations (interpersonal). Sternberg (2000, 2003, 2010) combined interpersonal giftedness with intrapersonal giftedness and added extrapersonal giftedness, terming it *wisdom*, which he defined as using both intelligence and creativity in order to achieve "the common good." He posited that wisdom as a form of giftedness comes from the intertwining and balancing of intrapersonal desires (for the good of oneself), interpersonal desires (for the good of others), and extrapersonal (fits in the current context such as community or environment) and the application of all three in all courses of action.

Statement of the Problem

A substantial body of research and literature has established the emotional and social development needs of gifted and talented youth. Traits of giftedness and creativity often appear as strengths, but the very same characteristics also have the potential to cause serious disturbances and maladjustment (Clark, 2002; Seago, 1974; Webb, 1994), which is particularly concerning as gifted and talented individuals are adept at masking psychological difficulties (Gross, 1998; Jackson & Peterson, 2003). Gifted and talented students develop unevenly in multidimensional layers and often have significant disparities between cognitive, psychological, emotional, and social abilities and skill levels. Many in the field of gifted and talented education argue that asynchronous development is the defining characteristic for giftedness (Goerss, 2005; Webb et al, 2007; The Columbus Group, 1991). They are often exceedingly advanced in cognitive or creative areas while functioning socially and emotionally at levels far below non-gifted age mates. Social and emotional development depends on the way the brain identifies and processes information in the affective centers. The higher an individual's intellectual capacity, the more extreme the asynchrony will be (Goerss, 2005; Morelock, 1992; Schwartz, 2013; Webb & Kleine, 1993; Webb, Meckstroth, & Tolan, 1989). "The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally" (Morelock, 1992; The Columbus Group, 1991). Although many gifted and talented individuals flourish in their school environments, a large percentage are challenged by difficulties with achievement issues, isolation, misidentification, emotional intensity, and perfectionism. Approximately a fourth of the gifted population has severe social and emotional difficulties, which is more than twice as many found in the overall U.S. population. (Gallagher, 1991; Grobman, 2006; Jackson & Peterson, 2003; Mendaglio &

Peterson, 2007; Moon, 2009; Neihart, Reis, Robinson, & Moon 2002; Peterson, 2008, 2009; Peterson & Ray, 2006; Peterson & Rischar, 2000; VanTassel-Baska, Cross, & Olenchak, 2009; Webb, Amend, Webb, Goerss, Beljan, & Olenchak, 2005; Winner, 1996).

The lives of gifted and talented youth are very complicated because of the combination of asynchronous development, and social and emotional difficulties can develop into more serious challenges and be devastating enough to alter their decisions and actions. (Delisle, 2013; Garland & Zeigler, 1999; Gath & Tennet, 1972; Neihart, 1999, 2009; Neihart et al., 2002; Rowley & Amend, 2005; Rowley & Olenchak, 2005; Seeley, 1984, 1993). According to Robinson (2008), school environments can be the most serious problem because children spend around seven hours a day (for almost 200 days a year) in this setting. “If the setting is a poor match, the consequences can be nearly unbearable. Children who are otherwise kind, good-hearted, and patient can grow irritable, impatient, negativistic, even arrogant under such circumstances...” (p. 35). It is not only the academically gifted child that faces these challenges but also the creatively gifted. An abundance of research has established highly creative students often underachieve, have serious school problems, exhibit undesirable characteristics, and have difficulty in traditional school settings (Amabile, 1989; Davis & Rimm, 1994; Goertzel & Goertzel, 1960; Oliphant, 1986; Rim & Davis, 1976; Ritchie, 1980; Robinson, 1980; Torrance, 1962).

Developing an understanding of the impact of various environments and curricula on gifted students’ development in emotional and social intelligence is of utmost importance. Robinson (2008) noted the importance of examining how students develop non-intellectual abilities, such as ethical decision making, intrapersonal abilities, interpersonal abilities, adaptability, stress management, and emotional intelligence within a variety of school contexts and environments in order to help stakeholders (policymakers, counselors, mental health

providers, administrators, teachers, and parents) make decisions to best support the spectrum of gifted and talented populations. The purpose of this study was to understand (1) if gifted individuals' socioaffective abilities were similarly advanced as their cognitive capabilities, and (2) if participation in a particular high school gifted and talented program influenced socioaffective development of gifted and talented adolescents. The following research questions guided the study:

1. How do academically and artistically talented gifted adolescents (ages 16-18) perform on psychometric scales of social and emotional intelligence and judgment? Do they differ from their age normative sample on the BarOn EQ-i: YV? Are there gender differences among gifted and talented students?
2. Does school environment impact gifted and talented students' socioaffective development on the BarOn Emotional Quotient Inventory: Youth Version (BarOn EQ-I: YV) psychometric scales?
3. Does participation in a distinct type of gifted and talented program (public academic and talented program v. charter creative arts gifted program v. charter arts-integrated academic program) impact gifted and talented adolescents' social development and emotional intelligence responses on the BarOn Emotional Quotient Inventory: Youth Version (BarOn EQ-I: YV)?

Research Hypothesis

The primary hypothesis was that there would be no associations between intelligence and/or creativity and emotional and social development among the gifted and talented students. Additionally, the researchers expected no effect of school program, no significant change on

BarOn EQ-I: YV scores between Time 1 and Time 2, in all five distinct gifted and talented environments. The null hypothesis was based on studies and theories in neuroscience and neuropsychology, which have established the symbiotic nature of the developmental domains outlined above; the processes of the brain are interdependent and intertwined and cannot be separated (Berk, 2009; Fischer & Bidell, 1998; Spencer & Schöner, 2003; Thelen & Smith, 1998; Fogel, 2000, 2001; Granic, Hollenstein, Dishion, & Patterson, 2003; Kim & Sankey, 2009; Lewis, 2000). Additionally, meta-analyses of research studies revealed that academic courses with no additional socioaffective development emphasis had no effect on development and that curricula must deliberately encourage psychological development in all socioaffective domains simultaneously in order to produce results (McKenzie 2005; Schlaefli, Rest & Thoma, 1985).

Overview of Methodology

This study was designed to examine gifted and talented students' developmental level of socioaffective abilities. Specifically, the project compared five groups of academically gifted and talented students ages 16-18 in an ethnically diverse moderate-size city in the southeastern United States with heterogeneous groups of students on emotional and social intelligence to determine whether gifted and talented students' development in these traits is consistent with their academic and creative abilities. This study also examined the effects of gifted and talented programs on the social and emotional development of gifted and talented adolescents. Students ranging in age from 16 to 18 were selected because (1) achieving at the high school level has been connected with students' achieving in college (Peterson, 2000), (2) it was a period of significant emotional and social growth (Berk, 2009; Rest, 1986, 1993), and (3) students were exposed to the environment and curriculum for a long period of time (Lee & Olszewski-Kubilius, 2006; Schlaefli, Rest & Thoma (1985). Gifted and talented students' performances on

the psychometric instrument scales measuring social development and emotional intelligence were compared over time and by type of program. Students took quantitative pre- and post-tests in their gifted and talented classes over a 3-month period with BarOn EQ-I: YV scales assessing social development and emotional intelligence. The regular classroom teachers administered the psychometric instrument; due to the study design, the researcher was not directly involved in the administration of the instrument. Based on these differences, a quantitative difference in growth from Time 1 to Time 2 on these scales was examined. Change scores among schools were compared. If one school was different, the qualities that produced this difference were examined. Results provided information on whether a particular school environment led to differences in student socioaffective developmental profiles. Expected results were the null hypothesis—no significant change on BarOn EQ-I: YV from Time 1 to Time 2: no effect of school program.

The participants were purposively sampled for the study. Five groups of gifted and talented students were studied. Two urban schools and three suburban schools were the environmental sites of the study. A charter school for talented and creative arts and a charter arts-integrated academic program were the sites of the urban schools, and three public school academic and talented programs were the suburban and rural sites. The gifted students were typical for these particular settings (suburban/rural) and (metro/urban) and the demographics for the students were similar in the five schools. The schools offered typical (and varied) gifted and talented programs. The schools selected were appropriate, diverse, and representative of their districts, and adding additional schools would not enhance the quality of the study.

Because the primary focus of the study was to understand gifted and talented students' socioaffective development in a gifted and talented high school program, a quantitative

evaluation design and a quasi-experimental pre-test post-test nonequivalent groups design guided this study (Campbell & Stanley, 2015; Creswell, 2013; Shadish, Cook, & Campbell, 2002; Trochim, Donnelly, & Arora, 2016). This approach included conducting cross-sectional research over time, with no control group and purposeful groups chosen out of convenience rather than through randomization. It observed natural events by measuring variables repeatedly at different time points with pre- and post-tests (not influencing what happened and the measures of variables were not biased because the researcher was not present). The study was *treatment as usual* because the schools were conducting their normal education practice. This study researched the effectiveness and comparison among the five distinct classroom environments.

Based on these differences, this study examined whether a quantitative difference in the raw scores on six psychometric scales of socioaffective development occurred. School environment and curriculum artifacts differentiate the programs (talented arts v. public v. charter). The five schools were considered as five interventions (each school was an intervention = it was their environment). Data was examined for changes from pre- to post test in each school environment. The change scores were then compared among the five schools. If a group (one school) was statistically different in change score (Time 1 to Time 2) on the BarOn EQ-I: YV, then the environment and artifacts were examined for qualities that produce this difference. Causation was not explored, this study only examined if change score and environment co-occur in a certain way. If no change, then perhaps the particular environment did not have the capacity to impact social or emotional development. Data derived from each of the scales on the BarOn EQ-i: YV were examined as outcome variables. Analysis utilizing SPSS 25 focused on change over time for each intervention (school environment), gifted adolescents as compared to the normative sample, and gender differences between gifted and talented adolescents. The

relationship between social and emotional growth and school environment was examined; specifically, whether socioaffective development related to type of environment.

Definitions of Terms

Developmental growth. For the purpose of this research study, social and emotional development growth is generally defined as a significant increase in developmental growth (upward shifts in distribution) as measured by social and emotional development psychometric instruments.

Socio-emotional/social-emotional. Social-emotional encompasses both intrapersonal and interpersonal processes, including the experience, expression, and management of emotions and the ability to establish positive and rewarding relationships with others (Cohen, Onunaku, Clothier, & Poppe, 2005). According to Collaborative for Academic, Social, and Emotional Learning (CASEL) (2017), social-emotional is:

the cognitive process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions.

Socioaffective. Socioaffective merges cognitive, emotional, and social domains as one term. It includes considering factors such as emotions, attitudes, and emotional states (mood and sentiments) (Oxford, 1990). It refers to socioaffective development and all the factors that influence. This domain encompasses interpersonal relations, friendships and groups; development and regulation of emotions; personal and gender identity construction; empathy development; social development, thinking, and judgment. It is “a robustly interconnected

network that may be central to introspective, socioaffective, that is, self- and other-related mental processes” (Amft, Bzdok, Laird, Fox, Schilbach, & Eickhoff, 2015).

Psychosocial. Psychosocial relates social development with mental and psychological domains to influence personality development. Erikson (1958) expanded Freud’s research and developed his theory of psychosocial development with eight distinct stages. He argued that personality develops in a predetermined order and builds upon each previous stage. His theory centers on how individuals socialize and how this affects sense of self and cognitive development for an autonomous individual (Erikson, 1950, 1963; Erikson, Paul, Heider, & Gardner, 1959).

Giftedness. Giftedness may include academic competence, artistic capability, leadership, creativity, or any other valued traits within a society. According to the U.S. federal definition of gifted and talented:

The term gifted and talented, when used with respect to students, children, or youth, means students, children or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services or activities not ordinarily provided by the school in order to fully develop those capabilities. (“No Child Left Behind Act” Definition of Gifted and Talented, 2002, Title IX, Definition 22)

The National Association for Gifted Children (NAGC) offers a slightly different definition of giftedness:

Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any

structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). (NAGC, 2010b, para. 3)

Throughout the literature review, giftedness refers to demonstrating the ability to perform at high levels in a variety of domains. However, each school in the study modified these definitions to fit its parameters for giftedness and talent, and those definitions are outlined in greater detail in Chapter 3.

Creatively Gifted and Talented. Individuals with special gifts and talents who have exceptional and extraordinary talents in particular specialized areas often exceling in the visual or performing arts (Clark, 2002). For the purposes of this study, creatively gifted and talented are considered included in the term “gifted” as these are areas of giftedness equal to academic giftedness. The U.S. Department of Education (1993) defines giftedness as inclusive of all areas, such as intellectually, academically, creatively, and talented:

Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. (p. 3)

Summary and Overview of the Work

In summary, non-intellectual characteristics have been included in recent definitions and theories of giftedness. Examining development in these domains can provide insight into why some gifted children are not always successful in adulthood despite advanced IQ scores. Particularly whether non-intellectual characteristics of gifted individuals, such as emotional and

social capabilities, are as advanced as their intellectual abilities and how these are related to each other.

Research of gifted students' socioaffective development is limited. The few studies include gifted students who were identified as successful academic achievers, selected for special programs (Meckstroth, 2002). Therefore, many profoundly or creatively gifted, minority or low socioeconomic gifted, learning-disabled gifted students, and "at risk" or "maladjusted" gifted individuals are underrepresented in research studies of emotional and social development and giftedness (Peterson, 1997, 1999). Consequently, the majority of research data does not represent a complete picture of the gifted population. The current study was designed to remedy this research gap and included a more accurate representative sample of the gifted spectrum of academically, creatively, twice-exceptional, low SES, and minority gifted individuals.

Chapter Two: Review of Literature

The social and emotional needs of gifted and talented individuals have been the topic of much research (Al-Milli, 2011; Lee & Olszewski-Kubilius, 2006; Schewean, Saklofske, Widdifield-Konkin, Parker, & Kloosterman, 2006), but as of yet, there are no definitive conclusions that gifted individuals cope any differently with environmental stress than non-gifted age-mates. The overall findings suggest that individual outcomes depend on socioaffective traits, levels and type of giftedness, and the specific environment. The fundamental issues in question in this study are whether non-intellectual characteristics of gifted students (emotional and social abilities) are similarly advanced as their intellectual capabilities and whether participation in certain gifted and talented programs impacts the socioaffective development of gifted adolescents. The goal of this chapter is to examine the research supporting the contrasting views and highlight the few research studies attempting to reconcile the contradiction.

This chapter is divided into three major subsections. Each of these subsections provides relevant theory and research for the current study. Initial subsections review the central arguments concerning gifted individuals' social, emotional, and social development and discuss the research supporting these conflicting views. In order to place social, emotional, and social development theories in perspective for this study, the subsequent subsection presents a brief review of the historical and theoretical underpinnings of cognitive-developmental, psychosocial, and social-affective theoretical frameworks. The final subsection examines recent studies of gifted individuals using comparable instruments, methodology, and frameworks to the current study. This chapter will conclude with a summary of the literature findings, conclusions and interpretations of the relevant theories and research literature, and the intersection of these

various theoretical frameworks as they relate to specific aspects of the current study and its methodology.

Conflicting Conceptions of Giftedness and Non-intellectual Characteristics

Empirical and theoretical evidence supports the opposing views on the psychological, social, and emotional development and wellbeing of gifted individuals. The first theory posits that gifted individuals are generally more developmentally advanced or better adjusted than their non-gifted age mates, possessing a greater understanding and awareness of self and others, which shields them from maladjustment. The second interpretation argues that giftedness increases vulnerability; gifted individuals are more at-risk for development problems and adjustment difficulties. The issues of social development and social-affective development of the gifted and talented create a dichotomy in the field of gifted education: that (a) giftedness enhances adjustment and resiliency or that (b) giftedness heightens vulnerability to adjustment problems. There are four predominant perspectives concerning these issues in the literature, with conflicting theories and contradicting research studies to support both views. The gifted and talented are considered as (a) having higher emotional intelligence or (b) being more vulnerable emotionally than their age mates, or (c) being better adjusted to social and emotional change, or (d) in need of social and emotional support due to greater social-affective difficulties than their non-gifted peers.

Studies have yielded contradictory results on how giftedness affects psychological development, particularly the relationships and associations among intelligence and social and emotional ability, ethical development, or altruism (Abroms, 1985; Baker, 1995; Berndt, Kaiser, & Van Aalst, 1982; Eysenck, 1995; Freeman, 1983; Hollingworth, 1942; Jacobs, 1971; Janos, Marwood & Robinson, 1985; Leroux, 1986; Neihart, 1991; Parker & Mills, 1996; Ramaseshan,

1957; Reynolds & Bradley, 1983; Richards, 1989; Scholwinski & Reynolds, 1985; Strang, 1950; Tomlinson-Keasey & Warren, 1987; Watson, 1965).

Over the last century, two opposing views have dominated the dialogue. Lombroso (1889) established that giftedness increased vulnerability. However, longitudinal research (Terman, 1925; Terman & Oden, 1935, 1947) suggested that high intellectual ability correlated with fewer incidences of mental illness and adjustment problems. Witty (1951) and Witty and Coomer (1955) concurred, arguing high ability individuals demonstrated superior adjustment and coping skills. In the 1980s, highly publicized incidences of suicide and psychological developmental difficulties of gifted individuals led to a considerable amount of research on the psychosocial adjustment of gifted children (Abroms, 1985; Berndt, Kaiser, & Van Aalst, 1982; Delisle, 1982, 1986; Freeman, 1983; Grossberg & Cornell, 1988; Janos, Marwood & Robinson, 1985; Lajoie & Shore, 1981; Leroux, 1986; Prentky, 1980; Reynolds & Bradley, 1983; Richards, 1989; Scholwinski & Reynolds, 1985; Tomlinson-Keasey & Warren, 1987). This influx of social-affective research shifted gifted psychosocial adjustment beliefs and the term “social and emotional needs of the gifted” resulted. In the past 30 years, the debate has vacillated with research reinforcing both sides. Throughout the research supporting these contrasting views, one thing is evident: intellectual ability does influence social, emotional, and social development. Some have attempted to reconcile the divergent theories, arguing that numerous factors intertwine together to positively or negatively affect gifted individuals, specifically educational fit and curricula, environment, areas of giftedness, level of IQ, and psychosocial personality characteristics.

Gifted Individuals are Better Socially and Emotionally Adjusted

Some empirical studies suggest gifted individuals are better adjusted than their non-gifted counterparts. Clark (1992) argues that gifted individuals possess advanced social reasoning, high levels of self-awareness, heightened sensitivity to the feelings of others, and higher levels of emotional depth and intensity. Moreover, gifted individuals are presumed to mature to higher levels of social and emotional development because of their advanced intellectual growth and cognitive abilities (Garland & Zigler, 1999). Herrnstein and Murray (1994) found that intellectually gifted individuals are more likely to experience success in academia, career, and income level. Furthermore, their study provided evidence that high intellect individuals are less likely to become pregnant out of marriage, abuse drugs and alcohol, commit crimes, or remain unemployed or underemployed. Additionally, due to gifted individuals' advanced cognitive abilities, interest in global issues, and perceived socioaffective superiority, many in the field of gifted and talented development assume a high probability that intellectually gifted individuals will become leaders (Lee & Olszewski-Kubilius, 2006; Freeman, 2010, Smith, Smith, & Barnette, 1991).

Social and emotional (socioaffective) giftedness. There is a substantial body of research concluding that gifted individuals are socially and emotionally more mature and better adjusted than their non-gifted age peers. Some research studies show that gifted individuals exhibit better adjustment than their age-mates when measured on a range of psychosocial factors (Baker, 1995; Casey & Quisenberry 1976; Gallagher, 1958; Jacobs, 1971; Kaiser, Berndt, & Stanley, 1987; Miller, 1956; Neihart, 1991, 1999; Ramasheshan, 1957; Scholwinski & Reynolds, 1985). Supporters of this view consider intellectually gifted individuals, due to their advanced cognitive capabilities, to be capable of greater understanding of themselves and others and to

cope better with stress and conflicts than their peers (Garland & Zigler, 1999). Most frequently cited is Terman's (1925) longitudinal study of high-IQ children, which displayed a pattern of positive psychological and social adjustment for gifted individuals. In additional studies, gifted children displayed advanced skills in social adjustment (Abroms & Gollin, 1980; Childs, 1981), social perspective taking (Abroms & Gollin, 1980), social problem solving (Roedell, 1978), social knowledge (Scott & Bryant, 1978), affective perspective taking (Janos & Robinson, 1985), and advanced ethical reasoning ability (Andreani, 1992; Howard-Hamilton, 1994; Silverman, 1994). Baer (1991) provided evidence reinforcing the notion that gifted adolescents do not have any additional social or emotional problems than their non-gifted age-mates and are generally better adjusted than non-gifted peers. He argued that, in general, gifted individuals are characterized by emotional resilience, mental flexibility, and the ability to think positively, and that these characteristics may account for superior emotional adjustment. Additionally, Freeman (1983) compared 70 gifted individuals with two matched control groups and found no differences in rates of emotional development irregularity. Howard-Hamilton and Franks (1995) studied 167 gifted high school seniors with the Ego Identity Scale (EIS) and found that EIS scores overall were slightly above normative mean scores. They concluded that the gifted adolescents were coping effectively with psychosocial development.

Many researchers and theorists in gifted education have proposed concepts of affective sensitivity or gifted emotional intelligence or emotional overexcitability as a distinguishing area of giftedness (Dabrowski & Piechowski, 1977; Piechowski, 1979). Research in emotional overexcitability and giftedness reveals that intellectually gifted students score higher than their non-gifted peers on the Overexcitability Questionnaire (Ackerman, 1997; Breard, 1994; Gallagher, 1986; Miller, Silverman, & Falk, 1994; Piechowski, 1991; Piechowski & Colangelo,

1984; Schiever, 1985; Silverman, 1993; Silverman & Ellsworth, 1981; Tillier, 1998). In one significant study, Piechowski and Colangelo (1984) compared 49 gifted adolescents and 28 intellectually gifted adults with 42 non-gifted graduate students. Researchers concluded that the gifted individuals scored higher on intellectual, imaginal, and emotional overexcitabilities as a group than the non-gifted group. Schiever's (1985) study with creative individuals supported their conclusions in that the same three overexcitabilities were indicators of a creative personality and differentiated a high-creative group from a low-creative group among 24 gifted seventh and eighth graders. Gallagher (1986) compared 24 sixth-grade students (12 gifted students and 12 random non-gifted students) and found significant differences with the gifted students scoring higher on intellectual, imaginal, and emotional overexcitabilities. In Miller et al. (1994), results showed that emotional and intellectual overexcitabilities were significant discriminating factors between 41 intellectually gifted adults and 42 non-gifted graduate students. Gender differences were also evidenced with gifted females scoring higher for emotional overexcitability and gifted males scoring higher for intellectual overexcitability (Miller et al.). Furthermore, Ackerman (1997) found that 42 gifted 10th and 11th graders had significantly higher scores on psychomotor, intellectual, and emotional overexcitabilities compared to 37 non-gifted age-mates.

However, recent studies argue that emotional intelligence is only an area of giftedness, one not all gifted individuals possess. Piechowski's (1991) later work established that emotional giftedness grows out of emotional overexcitability only when gifted individuals have a desire to change themselves and to benefit and be of service to others. In Miller et al. (1994), the gifted adult group, despite having higher scores on the emotional and intellectual overexcitabilities, did not show higher levels of development than the non-gifted graduate students on the DRI

(instrument measuring Dabrowski's levels of Positive Disintegration). Additionally, Mayer, Perkins, Caruso, and Salovey (2001) argued that emotional intelligence may be related to emotional giftedness but that emotional giftedness can be identified only in part by emotional intelligence assessments. Gardner (1999) and Mayer et al. (2001) further expanded the definition of emotional giftedness to incorporate the social development aspect. They connected interpersonal and intrapersonal intelligence to Goleman's (1995) definition of emotional intelligence, asserting all areas deal with (1) knowledge, awareness, and control of one's own and others' feelings and (2) empathy with and sensitivity to emotional states. Their assertion called into question previous studies linking all gifted individuals with advanced social development.

Riyanto and Mönks (2002) reexamined previous social and behavioral research studies with the gifted. In most studies, moderately gifted adolescents show more positive overall ratings of behavior problems and social relationships compared to their chronological peers. However, upon closer examination, the findings regarding advantageous personal and social competence reveal that the moderately gifted are superior to the highly gifted in social and emotional development. Janos and Robinson (1985) also note that extremely gifted individuals are more vulnerable and are often "out of synchrony" with gifted and non-gifted peers. Freeman (1985, 1991) also suggested that highly gifted children are acutely sensitive and reactive to social stimuli and are therefore more susceptible to both positive and negative environmental conditions. Furthermore, some gifted characteristics might lead in either positive or negative social directions, such as dominance, competitiveness, and need for achievement (Freeman, 1991).

Gifted Individuals Are More at Risk for Social and Emotional Adjustment Difficulties

The opposite side of the dichotomy argues that gifted individuals are at greater risk for adjustment difficulties than non-gifted peers, especially during adolescence and adulthood. Theorists contend that giftedness increases vulnerability to adjustment problems because gifted individuals have heightened sensitivity to interpersonal conflicts and experience higher levels of alienation and stress as a result of their intellectual and creative abilities (Neihart, 1999). A significant number of research studies support this view (Andreasen, 1988; Dauber & Benbow, 1990; Hollingworth, 1942; Jamison, 1993; Janos & Robinson, 1985; Grossberg & Cornell, 1988; Richards, 1981; Roedell, 1986; Rothenberg, 1990; Silverman, 1983; Tannenbaum, 1983, 1997). Although gifted adolescents experience similar developmental issues as other adolescents, they are complicated by unique socioaffective needs and characteristics of giftedness. A vast body of research and literature establishes the unique social and emotional needs of gifted adolescents. Often these traits of giftedness appear as strengths, but when combined with intrapersonal, interpersonal, and environmental problems, serious developmental problems can occur (Clark, 2002; Seagoe, 1974; Webb, 1994). *Interpersonal* conflicts for gifted adolescents originate from unrealistic expectations from adults and being perceived as different by their peers. This often leads to underachievement, denying or rejecting their potential, which in turn leads to *intrapersonal* difficulties in self-concept, self-acceptance, and self-esteem (Allen & Fox, 1979; Riyanto & Mönks, 2002). *Environmental* problems (feeling hostile, resentful, bored, or disengaged) result from incompatible school settings or when teachers, parents, and peers accept mediocrity, fail to recognize excellence, or disparage performance (Allen & Fox, 1979; George, 1992; Robinson, 2008).

Gifted students develop asynchronously in multidimensional layers (intellectual, psychological, emotional, physical); they are exceedingly mature in some areas and immature in others, which often results in intense frustration, extreme sensitivity, and emotional outbursts. The higher an individual's intellectual or creative ability, the more extreme the asynchrony will be (Goerss, 2005; Schwartz, 2013; Webb & Kleine, 1993; Webb, Meckstroth, & Tolan, 1989). Gowan (1974) defined gifted asynchronous development as *dysplasia*, a disagreement or dissonance between the individual's chronological age and actual developmental stage or a disparity between the cognitive stage and the affective stage of the individual. Some researchers suggest that gifted individuals are more susceptible to temptation, delinquency, and deviancy, and risky behavior than other adolescents because of their social and emotional developmental dysplasia (Brooks, 1985; Gath, Tennent & Pidduck, 1970; Gowan & Demos, 1964; Jamison 1989, 1993; Peterson & Craighead, 1986). Particularly if the educational environment is ill fitting or damaging, they are more likely than non-gifted individuals to become involved in delinquency and crime (George, 1992). School environments can be a serious problem because children spend the majority of their time in this setting. If it is a negative environment or not well-suited to the individual's needs, the consequences can be severe (Robinson, 2008). Terrassier (1985) addressed the relationship between gifted asynchronous development and the environment as *dyssynchrony*, which involves internal aspects (disparate cognitive and socioaffective development rates) and external (social development rates and environmental settings). External dyssynchrony, according to Terrassier, is caused by an incongruity between the gifted individual and the school curriculum or between the individual and cultural expectations. It is not only the academically gifted child that faces these challenges but also the creatively gifted. Dyssynchronous issues with highly creative and talented students, such as

underachievement, psychological disturbances, and difficulty in traditional school settings, are well documented (Amabile, 1989; Davis & Rimm, 1994; Goertzel & Goertzel, 1960; Oliphant, 1986; Rimm & Davis, 1976; Ritchie, 1980; Robinson, 1980; Torrance, 1962). Additional research studies have correlated high levels of creativity and talent with egocentrism, uncooperativeness, defiance of authority, spontaneous hyperactive reactions, and physical or mental overreaction (Smith, 1966; Torrance, 1962, 1981, 1988).

McCallister, Nash, and Meckstroth (1996) argue that there is a discrepancy between research and experience in that some research studies portray a mostly positive depiction of gifted individuals, but studies based on experience are much more negative. Freeman's (1979, 2010) 20-year longitudinal interview-based study of giftedness found that intellectual giftedness was not generally correlated to adjustment success. Poor adjustment of gifted individuals was attributed to life events that affect non-gifted individuals in like manner. However, aspects particular to giftedness (intensity, perfectionism, hypersensitivity, and inadequate educational fit) caused problems for some gifted individuals, thereby leading to anxiety, conflict, and inappropriate behavior. By following the subjects for an extensive period, Freeman (2001, 2008) was able to conclude that intellectually gifted individuals may have the great ability to understand hypothetical dilemmas and to analyze arguments in view of their social contexts, but there was no correlation with gifted individuals actually choosing to use their gifts to understand and see the different points of view of others in their real life.

Giftedness and socioaffective difficulties. Some gifted students struggle in their school and community environments due to emotional intensity, motivation and achievement issues, lack of peers and isolation, identification problems, sensitivity to expectations and feelings, perfectionism, and other difficulties. These gifted students endure and survive in school rather

than flourish. More than a third of all gifted children manifest severe social and emotional difficulties, approximately 20% drop out of high school, and 19% do not complete college (Cohen & Frydenberg, 1996; Gallagher, 1991; Grobman, 2006; Jackson & Peterson, 2003; Mendaglio & Peterson, 2007; Moon, 2009; Neihart, et al., 2002; Peterson, 2008, 2009; Peterson & Ray, 2006; Peterson & Rischar, 2000; Renzulli & Park, 2000, 2002; VanTassel-Baska, Cross, & Olenchak, 2009; Webb, Amend, Webb, Goerss, Beljan, & Olenchak, 2005; Winner, 1996).

According to the National Association for Gifted Children task force, which examined the social-emotional development of gifted young people, “they face a number of situations that, while not unique to them, constitute sources of risk to their social and emotional development” (Neihart, Reis, Robinson, & Moon, 2002, p. xiv). Terman (1925) and Lubinski and Benbow (2000) argued that gifted individuals do not necessarily outwardly exhibit social problems, but instead characterized it as a heightened sensitivity to interpersonal conflicts. Gifted individuals experience greater levels of stress, disaffection, and isolation than non-gifted individuals due to their advanced cognitive abilities (Grossberg & Cornell, 1988; Hollingworth, 1942; Janos, Fung & Robinson, 1985) Janos & Robinson, 1985; Neihart, 1999; Roedell, 1986; Tannenbaum, 1983).

According to Silverman (1994), aspects of emotional overexcitability such as sensitivity, introversion, perfectionism, and high levels of emotional depth and intensity are considered to be indicators of gifted adolescents’ emotional complexity. Studies have found gifted individuals exhibit stronger overexcitabilities than their chronological peers (Nelson 1989; Silverman, 1993), which makes them more vulnerable to potential psychological problems than their less able peers. Concurring with the findings of Janos et al. (1985), Cross, Coleman, and Stewart (1995), discovered that gifted individuals who described feeling “different” from their age mates also held more negative perceptions of their socioaffective adjustment, stating that they are often

teased about their intelligence level, are painfully aware that they are different, have very few friends, and feel helpless about global issues.

Hollingworth (1942) argued that exceptionally gifted individuals (IQ above 155) are prone to emotional and social adjustment problems and are likely to suffer psychosocial isolation. According to Roedell (1986), the more profound the intellectual giftedness, the more likely the individual is to experience maladjustment. Dauber and Benbow (1990) suggested that the verbally gifted, in particular, are at risk, perhaps due to the communication disproportion with their peers. Garland and Zigler (1999) supported the connection between gifted developmental dysplasia and socioaffective problems because advanced intelligence combined with heightened sensitivities and personality traits (perfectionism, non-conformity, idealism, excitability, and unrealistic goals/expectations) showed the potential for adjustment problems. Dauber and Benbow (1990) studied highly gifted (300 adolescents) and moderately gifted (100 adolescents) based on SAT scores with measures of personality and social relations. The authors found significant differences between verbally and mathematically gifted students, with verbally gifted adolescents expressing the lowest social relationship status and lowest feelings of importance. The study also found that the moderately gifted students reported more favorable social and personality profiles overall than did the highly gifted group. The exceptionally gifted students reported “more introverted, less socially adept, and more inhibited” behavior and their peers viewed them as “much less popular, less socially active, less athletic, and less active in leading the crowd” (p. 13). The researchers concluded that extremely gifted students might have a greater risk for social and personality problems than moderately gifted students.

Riyanto (2002) studied 231 high school students in Indonesia, with 77 students in each of the groups: non-gifted, moderately gifted, and highly gifted. The results of the Social

Competence Questionnaire (SCQ) revealed significant differences among the groups. Most notably, highly gifted males scored significantly lower in social competence than any of the other groups. Interestingly, the non-gifted males scored in the highest ranges of social competency whereas the highly gifted males scored the lowest in social competency. The non-gifted females and highly gifted females scored equally in the intermediate ranges on social competence. Riyanto (2002) attributed the highly gifted students' low social competence to their acute asynchronous development, which causes substantial intrapersonal and interpersonal stress.

Several studies have shown a correlation between high intellect and psychiatric disorders. Rowland (1970) reported that 33% of eating disorder patients in his study had an IQ of 120 or above, and Dally and Gomez (1979) found that 90% of adolescent eating disordered patients in their study had an IQ of 130 or above. Garner (1991) argued that being gifted may render some gifted individuals vulnerable to the patterns associated with eating disorders, suggesting that increased high performance expectations contributes to perfectionism and competitiveness. Gowan and Demos (1964) observed that 6.5% of cases of maladjusted children in a large metropolitan clinic had an IQ of 130 or more on the Stanford-Binet Intelligence Scale. This percentage is double what it should be given the gifted distribution within the general population. Tong and Yewchuck (1996) found 39 gifted high school students to have significantly higher levels of anxiety than 39 non-gifted students on the Piers-Harris Children's Self-Concept Scale. Parker (1996) found mathematically gifted 7-9 grade students scored significantly higher than the normative group on Obsessive-Compulsive subscales of the Brief Symptom Inventory (BSI). A large number of studies have established a relationship between creative giftedness and mood disorders (major depression, dysthymia, suicide, and bipolar disorder or manic-depressive) in adults, particularly writers and artists (Andreasen, 1988; Feldman, 1989; Greenacre, 1957, 1959;

Jamison, 1993; Lowenfeld, 1941; Niederland, 1976; Panter, Panter, Virshup & Virshup, 1995; Pickford, 1981; Richards, 1981; Rothenberg, 1990). Furthermore, several clinical studies found similarities in the thought processes of manic, psychotic, and highly creative people (Prentky, 1980; Rothenberg, 1990; Rothenberg & Burkhardt, 1984). Jamison (1989; 1993) also provided research support for a cognitive connection between creativity and psychopathology. She found that most of the cognitive changes that characterize mania and hypomania are also found in creativity: restlessness, grandiosity, irritability, intensified sensory systems, quickening of thought processes, and intense feeling.

Socioaffective development difficulties and vulnerabilities of the gifted. Highly creative and talented adolescents have serious problems in traditional school settings, often underachieve, and exhibit defiant or deviant behaviors (Amabile, 1989; Davis & Rimm, 1994; Goertzel & Goertzel, 1960; Oliphant, 1986; Rim & Davis, 1976; Ritchie, 1980; Robinson, 1980; Torrance, 1962). These problems can be compounded by the individual's high degree of sensitivity and a capacity to be disturbed, leading to a highly volatile situation. Especially in the early teen years, creative students are very fearful of rejection by peers and feel insecure due to changes in physical and emotional make-up and an increasing awkwardness in interpersonal relations (Torrance, 1962). Creative giftedness can lead in opposite directions: positive socioaffective behaviors and success or negative behaviors and failure (Runco, 2009). Kim (2008) argued creative giftedness can be a gift or a curse, depending on whether it is channeled into productive behaviors. Furthermore, "highly creative children face social difficulties due to their unique personality characteristics and needs that may not be experienced by other students" (p. 237). Gifted youth, especially the twice exceptional, frequently have social and emotional challenges, which cause them to channel their intellectual power for tragedy and destruction

instead of for the greater good (Rowley, 2012). According to George (1992), there is evidence that some gifted children who are misidentified or unsupported become involved in crime or turn to delinquency.

History is replete with individuals demonstrating that there is an equal propensity for a dark side to creativity and giftedness (Hitler, Mengele, Stalin) as there is a light side (Gandhi, Thoreau, Einstein). This is also evident in studies of the “evil genius” and correlations between psychopathologies and creativity (Becker 2000, 2001; Sass & Shuldburg 2000, 2001; Runco, 2009; Runco & Richards, 1998) and studies of behavior problems of creative youth (Kim, 2008; Kim & VanTassel-Baska, 2010). Creative geniuses display few differences in their cognitive abilities and creative talents; the primary difference affecting their behavior are the values they hold and the decisions made based on these values (Runco, 2009).

Cornell (1989) studied the adjustment of 482 gifted children (grades 5-11) compared to children not identified as gifted. Using Harter Self-Perception Profile for Children, sociograms, and the Revised Children’s Manifest Anxiety Scale, Cornell found a negative correlation between gifted children and indicators of adjustment. Lajoie and Shore (1981) reviewed relevant literature on high ability and suicide and concluded that there was a link between the two. Grueling and Deblassie (1980) found that suicide attempts were most prevalent among females under twenty with an above average IQ. Hayes and Sloat (1990) observed that 8 out of 42 reported incidents of suicidal gestures in 69 schools involved academically gifted students. According to a study of the 50 or so major school violence instances in the United States since Columbine, 85% of the perpetrators were in fact gifted and talented students or in retrospect (by their characteristics, test scores, or grades) could now be identified as gifted (Rowley & Olenchak, 2005; Webb et al., 2005). This sobering assessment has led many experts in the field

of gifted development to study this phenomenon and possible interventions. Delisle (2013) examined gifted mass murderers from 2005 to 2012 (Red Lake, Virginia Tech, Columbine, Tucson, Aurora, and Newtown), and outlined multiple points of convergence such as: social awkwardness, victims of frequent bullying, diagnosed anxiety or mood disorders, previously referred to mental health professionals, very little to no prior criminal behavior, obsessive fascination of violent media and prior mass shootings, meticulously planned killings for months or years, and experienced a “psychotic break” (divorce, death, defeat) within months of the shootings. According to Delisle (2013), all the gifted mass murderers were adolescent males who had a fixation with death, gore, and violence. None gave any direct threats prior to attacks and all were in retaliation for bullying and/or some perceived transgression or perceived injustice. Kerr and Cohn (2001) noted factors such as boredom, ridicule, and lack of acceptance can cause gifted males to behave like sociopaths, exhibiting sociopathic behaviors of self-centeredness, manipulation, rebelliousness, aggression, and self-destructiveness. Eysenck (1995) reviewed more than a century of research and concluded that genius was correlated to high scores on his psychoticism scale (males scoring twice as high as females) and argued that genius requires psychopathology. Piechowski (1997) also concluded that individuals who possess gifted talents also include people who use them for anti-social purposes. He referenced the advanced special talents it takes to develop biological and chemical warfare and cultural manipulation activities that result in tyrannical powers. Gifted individuals can reach Dabrowski’s highest developmental stages, but still inflict mass destruction; thereby reinforcing that there is no correlation between high ability and positive socioaffective behavior. (McClaren, 1993; Tannenbaum, 2000).

A considerable amount of research indicates many highly gifted individuals suffer from disorders (Barkett, 2002; Claridge, Pryor, & Watkins, 1998; Dabrowski, 1967, 1972; Jackson, 1998, 1995; Jamison, 1993, 1999; Piechowski, 2002; Styron, 1990; Tolan, 1998). Gifted adolescents are adept at masking social and emotional distress (Gross, 1998), which further complicates identification of maladjustment. Jackson and Peterson (2003) combined Jackson's (1995) phenomenological research study with copious clinical files and focus groups with highly gifted adolescents and found several trends, most notably the ability to conceal or mask various characteristics of severe psychological issues and disorders. They attributed this "masking phenomena" and complex defense mechanisms to the gifted individual's profound sensitivity, sense of shame, sense of failure, fear of alienation, fear of vulnerability, and a fear of harming others with their toxic psychological state. The researchers concluded emotional extremes, dark mental images, and spiraling thoughts are common in high ability individuals, although expertly hidden, and without meaningful relationships and in-depth communication, many highly gifted adolescents are gravely at risk (Jackson & Peterson, 2003).

A closer examination of sample populations reveals that the bulk of research studied gifted individuals who were identified as successful academic achievers selected for special programs (Meckstroth, 2002). Therefore, many profoundly or creatively gifted, minority or low socioeconomic gifted, learning-disabled gifted students, and "at risk" or "maladjusted" gifted individuals are most likely underrepresented in research studies of socioaffective development and giftedness (Peterson, 1997, 1999). Consequently, the majority of research data does not represent a complete picture of the gifted population. Future studies should include a more accurate representative sample including academically, creatively, twice exceptional, high poverty, and minority gifted and talented adolescents.

Historical and Theoretical Underpinnings of the Cognitive-Developmental, Psychosocial, and Social-Affective Frameworks

For nearly a century, philosophers, psychologists, sociologists and educators have theorized and studied the development of social and emotional skills and reasoning of high achieving individuals. The affective domain has roots in all aspects of human psychological composition. It has an emotional component, cognitive component, and a behavioral component. Historically, these three aspects have been studied separately: cognitive-developmental theories focus on judgment, psychoanalytic theories on emotions, and social-developmental theories on behavior. Currently, an increasing body of research in neuroscience, neuropsychology, psychology, psychiatry and education reveals that all three components are interrelated and interdependent (Berk, 2009; Markus & Wurf, 1987; Fischer & Bidell, 1998; Spencer & Schöner, 2003; Thelen & Smith, 1998; Fogel, 2000, 2001; Granic, Hollenstein, Dishion, & Patterson, 2003; Kim & Sankey, 2009; Lewis, 2000).

Numerous and lengthy studies have researched social and emotional development in the areas of cognitive-development, psychoanalytic, and behavioral learning; however, in almost all cases, these three facets have been studied separately leading to many divergent theories. Additionally, various frameworks and models purporting to encourage the different socioaffective branches of child development have been debated in curriculum development; however, research is inconclusive on the effectiveness of these various programs. However, recent studies and theories in neuroscience and neuropsychology have established the symbiotic nature of these components of the human brain, the processes of the brain are interdependent and intertwined and cannot be separated. This research presents a plausible explanation why previous curricula studies encouraging development in only one branch (only “cognitive” or only “behavioral”) have been inconclusive in stimulating growth, because psychological development

must be stimulated in all areas simultaneously. This framework overview explores the educational theories and research within the three branches of human psychological composition (affective, behavioral, cognitive) and the few overlapping theories (see Figure 1).

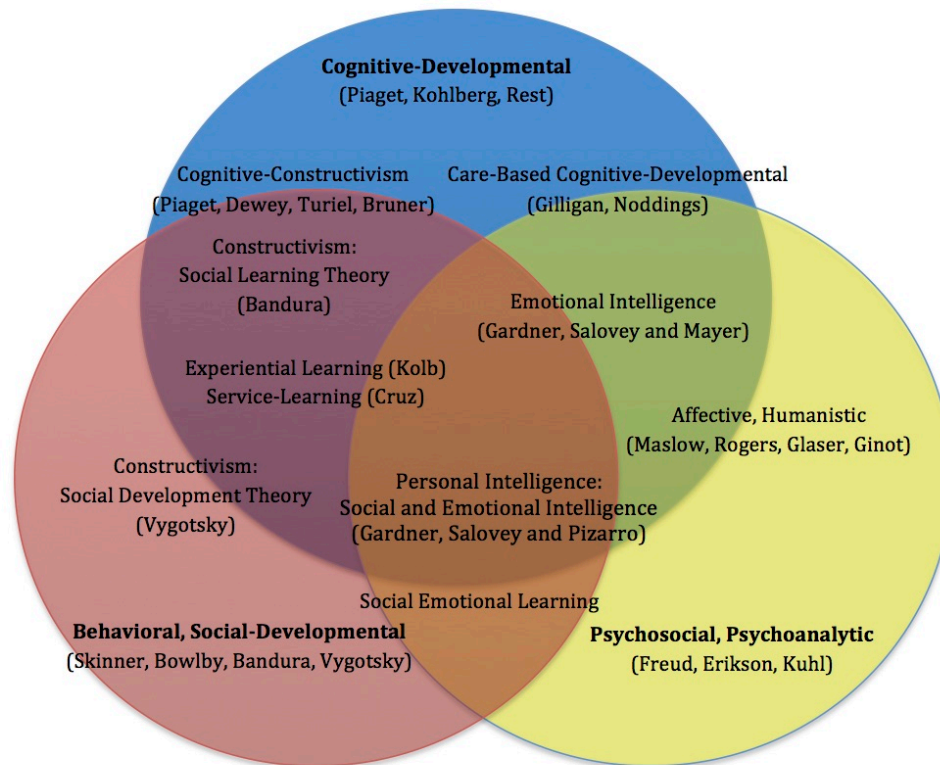


Figure 1: Human Psychological Development: Affective, Behavioral, Cognitive Theories

Cognitive-Developmental Frameworks

Piaget's cognitive development. Piaget's work (1932/1965) inspired the cognitive-developmental perspective of psychological development. In his early research, he focused on children's beliefs of right and wrong. Numerous studies (Kohlberg, 1958, 1969, 1976, 1984; Turiel, 1966, 1978, 1983, 1997; Rest, 1975, 1986, 1993; Rest, Turiel, & Kohlberg, 1969) confirmed cognitive ethical, social, and emotional development are aided and reinforced by (1) cognitive maturation (cognitive development), (2) gradual release from adult control (affective development), and (3) peer interaction (behavioral, social development).

Kohlberg's six stages of development. Kohlberg (1969) continued Piaget's research and constructed his six-stage sequence of moral development. Kohlberg concurred with Piaget that children develop understanding of justice, rights, equality, and human welfare through their experiences. Kohlberg expanded on Piaget's assertion, positing that understanding is promoted by (1) disequilibrium (cognitive-moral conflict), becoming aware of alternate viewpoints and noticing weaknesses in one's current thinking, and (2) role-taking skills (perspective taking)—the ability to differentiate one's perspective from others.

Rest's upward shifts in distribution. Rest (1975) further examined and questioned cognitive-developmental assertions that development occurs and progresses in distinct stages. He disagreed with stage growth theories and posited development does not occur in distinct and clearly defined stages but in upward shifts in distribution: gradual increases in upper stage scores with simultaneous decreases in lower stage score, and concluded that developmental regression to lower stages was a possibility. Rest's (1975) longitudinal study contradicted Kohlberg's step-by-step progressions and revealed developmental change was a gradual upward shift in the distribution of responses; as development occurs, subjects use less of the lower stages and more of the higher stages (1993, p. 12).

Cognitive-Constructivism Frameworks: Linking to Behavioral, Social-Developmental

Turiel's domain theory. In clarifying incongruities in Kohlberg's stage sequencing, Turiel developed the Domain Theory (distinguishing morality and social conventions) where he outlined domains of social knowledge that come from social experiences, in which morality is one of several conceptual and developmental domains of a child's social knowledge development (Nucci & Turiel, 1978; Turiel, 1966, 1974, 1978, 1983, 1997). Based on his

research, Turiel proposed that morality and social convention are distinct but parallel development paradigms.

Vygotsky's sociocultural theory. The major theme of this theoretical framework is that social interaction is necessary for cognitive and psychosocial development, originating through interactions with others (interpsychological) and then internally (intrapsychological) for the individual (Vygotsky, 1978). He posited that children construct knowledge actively through social interaction with more advanced individuals. Individuals are entrenched in socioculture (e.g. home, school, community) in which social interaction with adults plays a profound role in psychosocial development. The Social Development Theory and Constructivism framework are based on students having an active role in their own cognitive and behavioral development through reciprocal learning experiences with parents, teachers, and community. He disagreed with Piaget's notion that development precedes learning; instead arguing that social and cultural learning precedes cognitive development.

Behavior, Social-Developmental Frameworks

Psychoanalytic theories and social learning theories view development as an internalization of societal norms of good conduct and the cultivation of empathy (Berk, 2009). The Social Learning Theory suggests children learn behavior through observing and imitating adults who model appropriate behavior, and argues that rewarding children for good behavior (with praise, affection, or other rewards) is not sufficient for children to acquire reasoning abilities (Bandura, 1977; Grusec, 1992). According to Bandura (1977) and Grusec (1992), the level of warmth and responsiveness of the adult model, consistency between the statements and the behavior of the adult, and competency and powerfulness of the adult modeling the social actions affect children's willingness to imitate and internalize social behavior. Based on these

theories, Social Emotional Learning (SEL) and Service Learning (SL) have been the recent subjects of research in the field of social and emotional development and socioaffective education.

Emotional Intelligence, Affective, Humanistic Frameworks

Emotional intelligence framework. Emotional intelligence was originally described by Salovey and Mayer (1990) and Mayer and Salovey (1997) as a psychological developmental theory of emotional competencies. According to Gardner (1999), emotional intelligence encompasses personality, individuality, motivation, character, and specific cultural values. He argued that this concept of socioaffective development is essential for the highest realization of human nature. Salovey and Pizarro (2003) refined the theory by defining it as the ability to understand and express emotion accurately, the ability to adapt emotions, the ability to use emotions to facilitate cognition, and the ability to manage one's own emotions and the emotions of others. Emotional intelligence merges the cognitive and affective domains and establishes the symbiotic relationship between reason and emotion. Prior to recent neuroeducation research establishing of the interconnectedness of the brain processes, Pizarro and Salovey (2002) argued that emotional intelligence (the affective) plays a leading role in behavior and ethical development. They also warned that the same emotional abilities that encourage caring, ethical behavior can also be used to the detriment of society: "Criminals who are masters at deception or con artists who are trained to manipulate other may in some ways be among those highest in at least some of these emotional skills" (Pizarro & Salovey, 2002, p. 249).

Socioaffective Educational Programs Research

In order to connect developmental research studies to education, McKenzie (2005) studied the increased interest in emotional, social, and moral concerns in K-12 education, and

found that despite the prevalent use of these terms in education literature, the school programs implemented are rarely studied and little research has been conducted on the actual effectiveness of these various approaches to socioaffective education. She analyzed the various education movements from 1940-2000: (pre-1960s) character and citizenship education, (1960-1980) values clarification and cognitive-developmental moral education, and (1980-2000) the subsequent dramatic decreases in these programs as well as decreases in affective education, social emotional education, and social skills training for specific problems. McKenzie (2005) outlined current and past studies for each theory, argument, and position and determined that the desired outcomes of character education, moral education, social skills training, and social-emotional education are often quite similar, as are the methods used to achieve these common objectives. However, the most striking differences among the various approaches were the theoretical assumptions and stances on which the various studies were based. McKenzie (2005) concluded that while the numerous approaches may seem similar, the underlying aims of each study were very different, ranging from influencing socioaffective development to reducing crime. The author suggested further research studies, specifically exploring and comparing the various curricula in terms of socialization, cognition, affect, and development, which could enable a detailed mapping of the relationships among approaches to socioaffective education.

Schlaefli, Rest and Thoma (1985) conducted a meta-analysis of 55 research studies measuring programs purporting to encourage development. Half of the studies involved subjects in a special field (i.e. nursing, law, teaching). The types of educational programs examined were mostly group discussion of dilemmas and psychological development programs designed to encourage socioaffective development. Schlaefli, et al. (1985) concluded that (1) programs emphasizing dilemma discussion and psychological social and emotional development produced

modest overall effect sizes, (2) programs of about 3 to 12 weeks are best (less than 3 weeks proved ineffective), (3) academic courses in humanities and social studies, with no additional development emphasis, do not have an effect on judgment development. Although the current study specifically focuses on gifted and talented populations, the results of Schlaefli et al. (1985) meta-analysis were important to the design of the current study, specifically this quasi-experimental study examined various gifted and talented educational programs for comparison, and pre- and post-assessments over a 16-week period measured change scores for developmental impact.

Merging the Overlapping Theories and Models

More recently, socioaffective theorists, neuroscientists, psychologists, and educators have emphasized a merging of the three schools of thought (cognitive, behavioral, and affective) for comprehensive development (Narvaez, 2006; Berk, 2009; Battistich, Solomon, Watson, & Schaps, 1997; Benson, Leffert, Scales, & Blyth, 1998; Huitt, 2011; Lemerise & Arsenio, 2000; Narvaez & Rest, 1995), arguing that internalization of societal norms (behavioral) must be accompanied by cognitive-development goals of reasoning and empathy and care (affective).

Based on her research, Gilligan (1982) developed Ethics of Care, arguing that the importance of an emotionally supportive and caring environment is the most essential component of education. It requires a classroom environment based on mutual trust where students feel safe to be emotionally vulnerable and receptive to responding with concern and building affective relationships with others in the classroom community, thereby fostering empathy and care responses in students (Noddings, 2002; Watson, 2003). Humanistic and affective theorists and proponents of “care” moral development argue that trust, with the affective connections of care, is the foundation for prosocial behavior (Battistich, Solomon, Watson, & Schaps, 1997).

Piechowski (1979) also claims in that order to reach the higher levels of self-actualization, advanced cognitive development must be intertwined with compassion and emotional sensitivity. He connects cognitive development to emotional development by arguing that the affective domain generates cognitive functioning, which is necessary for developing high levels of sensitivity.

Berk (2009) incorporates the aspects of cognitive-developmental, affective, and behavioral development, “Empathy, sympathy, pride, guilt, and other self-conscious emotions require strong caregiving supports to develop, and their mature expression depends on cognitive development” (p. 484). In essence, it takes a cognitive approach (cognitive disequilibrium according to student’s level of understanding) and empathy and care-based social reinforcement and modeling in order to encourage internalization. In addition, service learning provides the rationale for behavioral growth and encourages individuals to adopt ethical standards because they are immediately applicable to their lives (Berk, 2009). (1) Cognitive-developmental education is concerned with developing the intellectual tools for socioaffective reasoning and judgment, (2) the humanistic model focuses on the role of the quality and care of relationships, and (3) service-learning focuses on real-world experiences in order to encourage socioaffective behavior development. Although these various schools of thought have been classified and researched as mutually exclusive, recent integrative frameworks of socioaffective education incorporate traditional cognitive-developmental reasoning discussions and literature with service-learning (empathy in action) in humanistic environments for a comprehensive socioaffective paradigm (Holter & Narvaez, 2009).

Numerous research studies have examined social and emotional development in the areas of cognitive-development, psychoanalytic, and behavioral learning; however, in almost all cases,

these three facets have been studied separately leading to many divergent theories and frameworks. An increasing body of research (Markus & Wurf, 1987; Fischer & Bidell, 1998; Spencer & Schöner, 2003; Thelen & Smith, 1998; Fogel, 2000, 2001; Lewis, 2000; Granic, Hollenstein, Dishion, & Patterson, 2003; Kim & Sankey, 2009) has established all three aspects as interconnected and interdependent. With the increase in school violence by gifted individuals, the relationship between socioaffective development and education has been brought to the forefront. However, very few studies have attempted to research the symbiotic relationship between socioaffective development and the classroom environment, and even fewer have researched socioaffective development of diverse gifted and talented populations. Therefore, a study of current gifted school environments analyzing the impact of various curricula on the socioaffective development of gifted and talented high school students is needed.

Related Empirical Research

A few major research studies have been conducted using various instruments measuring social development and emotional intelligence. These studies use models of emotional intelligence to theorize about the abilities and skills of gifted and talented individuals. Five studies are discussed in this section, as they inform conclusions from this study.

The first study relevant to this research design examined the interpersonal (social) relationships of 194 sixth-grade and ninth-grade students from four schools (27 were identified as gifted) (Tirri, 2003). The students were asked to write essays about a conflict in their school. The researchers evaluated the essays for interpersonal relationships and orientations of justice and care. Tirri (2003) concluded the results of her study validated previous findings by Yussen (1977) and Tirri (1996) that regardless of academic achievement and ability levels, all sixth-grade students were most concerned with interpersonal relationships over higher orientations of societal and moral rules (e.g. stealing, drugs, murder, reporting illegal acts). Additionally, Tirri

(2003) found that female students displayed a greater ability to empathize and take the role of a third person than did the boys. Yussen (1977) found adolescents were more frequently concerned with social themes of interpersonal relations over moral development. Colangelo (1982) and Tirri (1996) found gifted adolescents were no different than average adolescents in this regard.

The purpose of the second research study (Al-Milli, 2011) was to investigate the social development and emotional intelligence differences between highly intelligent gifted students and students of average intelligence in Damascus. It also examined the gender differences in gifted and non-gifted groups. The study used the Bar-On Emotional Quotient Inventory: Youth Version (BarOn EQ-i: YV) (Bar-On and Parker 2000) with 293 students 161 of average intelligence (101 male, 60 female) and 85 highly intelligent (59 male, 26 female) 10th grade students (ages 16-17). Al-Milli found gifted students to be significantly higher in scales of interpersonal, intrapersonal, adaptability, and general mood but significantly lower than non-gifted students in stress management. No differences in scores were found between gifted males and females or between non-gifted males and females. Gifted males were statistically more advanced in interpersonal, adaptability, and general mood than the males of average intelligence. The gifted females demonstrated significantly higher scores in adjustment and overall emotional intelligence than the non-gifted females. Al-Milli concluded that gifted individuals were higher than non-gifted individuals in half of the six psychometric scales but significantly lower in stress management.

Schewean et al. (2006) studied the social and emotional development of 169 gifted adolescents and the impact of school environments on psychological development with the BarOn EQ-i: YV. The gifted and talented students were either enrolled in a segregated academic

program specifically designed for gifted adolescents ($n=123$) or taught in an inclusive regular classroom setting ($n=46$). BarOn EQ-i:YV measures intrapersonal abilities, interpersonal abilities, stress management, adaptability and total emotional intelligence. Schewean et al. (2006) administered the instrument to the students, their parents, and their teachers, producing two developmental profiles for each individual. The researchers found that the parents of gifted students rated their children's abilities significantly higher in adaptability, stress management, and total emotional intelligence than did the parents of non-gifted children. The results showed that gifted individuals in a homogeneous school environment scored significantly lower in adaptability than gifted individuals in an inclusive school environment on both developmental profiles (student and parent-teacher). Schewean et al. concluded that in overall emotional intelligence, gifted and talented adolescents were comparable to age normative adolescents on the BarOn EQ-i: YV.

Another relevant study examined 98 academically gifted and creatively talented students in Spain, using the BarOn EQ-i: YV to assess variations in emotional intelligence of gifted adolescents (Prieto & Ferrando, 2009). The students in this study were identified as gifted through a combination of teacher nominations, ability tests scores, and creativity test scores (Torrance Thinking Creative Test; Torrance, 1974). For comparisons, 945 non-gifted students were also assessed. Of the six scales of the BarOn EQ-i: YV, Prieto and Ferrando found only one area was significant. The gifted students scored significantly higher than the non-gifted students in adaptability: flexibility in adjusting emotions and effective reasoning and problem-solving skills. Creative and flexible thinking, superior critical thinking, and advanced problem-solving are common characteristics of giftedness. The researchers concluded that neither advanced socioaffective abilities nor emotional and social maladjustments were characteristics of

giftedness. Prieto and Ferrando recommended future research should study psychosocial variables related to giftedness in order to provide necessary information for supporting and fostering socioaffective development in gifted and talented students.

Using three psychological scales, Lee and Olszewski-Kubilius (2006) examined the level of social and emotional intelligence, moral judgment, and leadership of 234 gifted high school students (grades 10-12) who participated in either an enrichment leadership program or an accelerated academic program at university-based summer gifted institutes. The students were selected based on extremely high intelligence; participants scored in the top 10% of all gifted students (of their age) who took the SAT. Lee and Olszewski-Kubilius concluded that their study provided support for the widely held belief that females show higher levels of emotion (caring for and being aware of others) whereas males show higher levels in cognitive problem-solving ability in emotional intelligence.

In measuring emotional intelligence on the BarOn EQ-i:YV, gifted males were slightly below (but not statistically below) non-gifted students in the age normative group, while gifted females scored statistically below the age normative sample in emotional intelligence. As a whole, gifted students scored higher on adaptability (flexibility and problem solving) but had significantly lower scores on stress management and impulse control ability compared to the age normative sample. The researchers concluded that gifted males and females were “more prone to being upset or angry, or were not good at controlling anger or impulses compared to the normative sample” (p. 52). Gender differences were only seen in two subscales: on adaptability, males had a higher mean score than females, and on interpersonal ability, females had a higher mean score than males. The researchers acknowledged that these findings did not corroborate previous studies (Ackerman, 1997; Breard, 1994; Gallagher, 1986; Miller et al., 1994;

Piechowski & Colangelo, 1984; Schiever, 1985) linking intellectual giftedness with higher levels of emotional development. Of interest in this study were the significantly lower scores in total emotional intelligence of gifted individuals as compared to the normative sample. Furthermore, an overall weakness was shown in stress management, tolerance, and ability to control impulses as evidenced by the intellectually gifted group's lower scores compared to heterogeneous, chronological age groups.

Regardless of the type of program (academic v. leadership), no differences were found in students' scores. There was no distinction on the three instruments between exceptionally gifted students who were academically oriented and those who were affectively oriented (civically minded and socially motivated). For the most part, relationships among measures of intellectual giftedness, moral reasoning, emotional intelligence, and leadership ability were not statistically significant, with the exception of the two areas mentioned above. The results demonstrate that higher levels of intelligence are not associated with higher levels of socioaffective development in gifted individuals. Lee and Olszewski-Kubilius (2006) concluded that advanced cognitive abilities may help gifted and talented adolescents comprehend social, moral, or political dilemmas, but they do not correlate with gifted students taking right actions.

Lee and Olszewski-Kubilius (2006) noted that gifted individuals, compared to other students of their age in socioaffective intelligence, displayed "potential areas of vulnerability and weakness that need further investigation" (p. 61). The researchers called for further studies to examine why gifted students displayed lower levels of stress management, emotional control, and tolerance than the normative sample, specifically whether this indicates that "the development of academic giftedness may occur at the expense of some aspects of emotional intelligence for some gifted students (Miller et al., 1994); and whether this is a reliable, if some-

what disconcerting, aspect of academic giftedness” (p. 57). It was also suggested that future studies measure these attributes in beginning and the middle or end of a program instead of a single assessment on the first day of the program as in this study.

The current study used the same psychometric scales (BarOn EQ-i:YV) for social development and emotional intelligence as the related studies. This study expanded on Lee and Olszewski-Kubilius (2006) by incorporating a broader sample population in various school settings and measured attributes in the beginning and middle of the academic year. With the conclusions of these five studies as a basis for comparison, this study was designed to examine the social development and emotional intelligence of a wide spectrum of gifted and talented adolescents in various gifted and talented school environments.

Summary

Several decades of research have barely scratched the surface of psychological, social, and emotional development of gifted individuals. Over time, educators and parents have become more aware of the need to nurture the social and emotional development of gifted adolescents. However, awareness does not necessarily induce research and action. The major question left unanswered is why are some gifted individuals not successful in adulthood despite high IQ scores or high levels of creativity? Therefore, an important research question was whether other developmental competencies of gifted individuals, including emotional and social abilities, were as advanced as their intellectual capabilities.

A great body of research examines the social and emotional needs of the gifted (Clark 1992; Hollingworth 1942; Janos & Robinson 1985; Silverman, 1994); however, there is no conclusive evidence that gifted individuals cope or adjust any differently (better or worse) than their chronological peers. The relationship between giftedness and psychological socioaffective development and wellness has most often been studied as a dichotomous question: are gifted

individuals more vulnerable and at-risk for psychological problems and adjustment difficulties *or* developmentally advanced and less at-risk for maladjustment than their non-gifted peers? The empirical research and theoretical evidence reviewed in this chapter suggests that neither conclusion is completely accurate for gifted individuals. Rather, the research suggests numerous factors intertwine together to positively or negatively affect the psychological and socioaffective development and adjustment of gifted individuals, specifically educational fit, curricula, environment, areas of giftedness, levels of IQ, and psychosocial personal characteristics.

In summary, a wide range of non-intellectual characteristics has often been the subject of much debate in the definitions of giftedness and curricula models of gifted education. Literature in the field of gifted education is at odds in regards to psychosocial development and extra-cognitive issues for gifted adolescents. Research has been inconsistent and contradictory on the issues of emotional intelligence and social ability and on the relationship between intellectual giftedness and socioaffective development. Moreover, gifted individuals are not a homogenous group, therefore contradictory conclusions that suggest a high degree of homogeneity or generalizability should be questioned. As a result of the conflicting views on the socioaffective adjustment of gifted individuals, it seems pertinent that additional research be conducted in this field. Despite the great debate over socioaffective characteristics in the field of gifted education, very few research studies deal with measured levels of development or examine multiple psychological domains simultaneously in regards to gifted adolescents. In order to increase the validity of conclusions drawn about adjustment concerns of gifted individuals, McCallister et al. (1996), Nail and Evans (1997), Lee and Olszewski-Kubilius (2006), recommend further research incorporating improved methodology such as sampling from diverse cultures and lower socio-economic families, educational fit/environment, and longitudinal studies. Since the body of

research is often contradictory, it is imperative to employ an improved methodology approach in order for data to illuminate previous study results and perhaps provide a deeper understanding of gifted emotional and social psychological development and possible school environmental affects.

This chapter provided a review of the literature surrounding historical and theoretical perspectives of emotional and social development of gifted individuals. From this review of literature, it was apparent that there was a need for improved methodology and quasi-experimental research in the area of socioaffective development with gifted students. This study serves to broaden the understandings surrounding the development of social and emotional skills of intellectually gifted and creatively talented students, especially as it relates to their educational environment. The research design, instrument, subjects and data collection methodology, statistical analysis, and research questions for this study are presented in the following chapter.

Chapter Three: Methodology

Procedures used to answer research questions and test hypotheses are described in this chapter. The central purpose of the study was to examine how gifted and talented adolescents ages 16-18 perform on psychometric scales of social and emotional intelligence and judgment. In addition, the study compared several school environments to determine if a particular gifted program environment impacted gifted and talented students' socioaffective development.

Furthermore, this chapter describes the research design employed, the population from which the sample was selected, sampling procedures, sample characteristics, and instrumentation. It also explains study procedures and provides a detailed description of data collection processes. Finally, this chapter lists hypotheses tested and indicates the statistical tests that were used to analyze the data.

Research Design

This study was a quantitative evaluation and a quasi-experimental study with a nonequivalent groups design (Campbell & Stanley, 2015; Creswell, 2013; Shadish, Cook, & Campbell, 2002; Trochim, Donnelly, & Arora, 2016), designed to examine the socioaffective psychological development of five groups of ethnically diverse, urban, and suburban intellectually gifted and creatively talented students enrolled in distinct gifted education programs (charter creative and talented arts program v. public academic and talented arts gifted program v. charter arts-integrated academic program). This approach included conducting cross-sectional research, with no control group and purposeful groups rather than random groups (see Table 1 for additional information). Cross-sectional design was best suited for this study to discover if a relationship existed among different school environments. It provided precise data for occurrences that could be examined using descriptive statistical analysis, while also

protecting against researcher bias. This study also examined gender differences and compared gifted adolescents' socioaffective abilities to the BarOn EQ-i: YV heterogeneous age normative sample. School artifacts were used to describe the environments.

Table 1

Quantitative Evaluation Research:

Quasi-Experimental, Nonequivalent Groups Design

Tested hypotheses from theory

Quasi-experimental—permitted prediction and established a relationship

Precise measurements and objective data collection

Analysis yielded a significance level (statistical)

Analysis after data collection

Instruments with psychometric properties

Designs were fixed prior to data collection

Statistical scales as data (standardized instruments measuring psychological constructions)

Data analysis was linear (prescribed, standardized, pre- and post-tests)

Reliable and valid data

The quasi-experimental design of this study observed natural events (measures of variables were not biased because the researcher was not present and did not influence what happened in the classrooms) by measuring variables repeatedly at different time points with pre- and post-tests. The study was treatment as usual because the schools were conducting their normal education practice. This study researched the comparison among various classroom environments on social

development and emotional intelligence of gifted and talented adolescents (ages 16-18). The research was guided by the following questions:

Research Questions:

1. How do academically and artistically talented gifted students (ages 16-18) perform on psychometric scales of social and emotional intelligence and judgment? Do they differ from their age normative sample on the BarOn EQ-i: YV? Are there gender differences among gifted students?
2. Does school environment impact gifted and talented students' socioaffective development on the BarOn Emotional Quotient Inventory: Youth Version (BarOn EQ-I: YV) over time?
3. Does participation in a distinct type of gifted and talented program (public academic and talented program v. charter creative arts gifted program v. charter arts-integrated academic program) impact gifted and talented adolescents' social development and emotional intelligence responses on the BarOn Emotional Quotient Inventory: Youth Version (BarOn EQ-I: YV)?

Setting

Despite research on high achieving gifted adolescents (Al-Milli, 2011; Lee & Olszewski-Kubilius, 2006; Lee et al., 2007), scholars have not addressed the full spectrum of gifted and talented individuals or examined various mainstream school environments. The purpose of this study was to provide a social and emotional development analysis of a wide range of gifted and talented individuals and program models, particularly programs with underserved student populations (including minority, high poverty, learning-disabled, at-risk, emotional/behavioral disorder, and creatively gifted). The five high schools in this study were purposely selected

based on their inclusive and diverse gifted and talented populations. The school sites were also chosen to provide a balance of urban, suburban, and rural populations. Five groups of gifted and talented students ages 16-18 were studied: two urban schools and three suburban/rural schools. Three public school academic gifted and creatively talented programs were the suburban/rural sites, and a charter school for talented and creative arts and a charter arts-integrated academic program were the urban sites.

The schools selected were appropriate, diverse, and representative of their respective districts. Adding additional schools would not enhance the quality of the study. The gifted and talented sample in this study was typical for rural, suburban, and urban settings in this metropolitan area in the southeastern United States. The gender and minority demographic percentages were similar in all school environments (see Table 2 for additional demographic information). The participating schools in this study offered typical (and varied) gifted and talented programs.

Population and Sample

To determine how gifted adolescents perform on psychometric scales of social development and emotional intelligence and to examine the effects of school environments on gifted and talented students' socioaffective development, a quasi-experimental pre-test post-test design was implemented. Three hundred and forty-three gifted students who participated in academic, enrichment, or talented gifted programs in five high schools from the Southeastern United States (two urban charter schools and three suburban/rural public schools) were the subjects of this study. All of the students were ages 16-18 at the time of the study (2017-2018). Caucasian/White and African American/ Black students were the two dominant ethnic groups of the student participants. The study population had a higher percentage of African American/

Black, Asian, and Multiracial individuals compared to the proportion of the entire U.S. population, and Caucasian/White, Hispanic/Latino, and American Indian/Alaskan/Native students were underrepresented. See Table 2 for more information about student participants.

Participants in this study were labeled gifted and talented as defined by state regulations requiring districts to rely on standardized tests when identifying gifted students. To be identified as gifted, state guidelines stipulated that students demonstrate high academic and intellectual aptitude or possess extraordinary talent in the visual or performing arts. For the intellectually gifted classification, students must have scored at least two standard deviations above the mean on both standardized reading and math tests or on an intelligence test. Two standard deviations above the mean translated to a score of 130 on the IQ test and near the 98th percentile. If a student scored between 1.5 and 2 standard deviations above the mean on all three tests; then the student's academic history was examined for evidence of traits of giftedness. For the talented arts identification in this state, students submitted portfolios of original work and took a state evaluation with talented screening instruments for committee review based on state guidelines for talent assessment. All students in the 10th and 11th grade gifted and talented classrooms from all five schools were invited to participate in the study (see Table 2 for demographic data).

The participants were purposively sampled for the study in order to include a wide range of gifted and talented individuals and program models, particularly programs including underserved gifted populations, academically gifted and creatively talented students, exclusive and inclusive environments, and charter and public education models. The three public schools were appropriate for this study because the district is well known in the state for its superior gifted and talented inclusive programming. The arts-integrated charter school was chosen for its selective admissions, exclusive environment, and ranking as one of the premier academic schools

in the state. Likewise, the charter school for the creative arts was selected because it is one of the state schools for the talented and creative arts with selective admissions and an exclusive environment. The sample of students was representative of intellectually and creatively gifted students as defined by the measures used to select them. Therefore, they do not represent students identified as gifted or talented by other various means, and results may not be generalized to all gifted and talented students. The convenience and purposeful sampling procedure limited external validity to the study; nevertheless, the results of this study yield useful knowledge in understanding how this sample responded to psychometric scales of socioaffective development. Additionally, results of this study help future researchers understand how groups with similar demographics may also respond.

Table 2

Student Participants

	Total (<i>n</i> = 343)	School A (<i>n</i> = 54)	School B (<i>n</i> = 53)	School C (<i>n</i> = 27)	School D (<i>n</i> = 160)	School E (<i>n</i> = 49)
Gender ^{<i>a</i>}						
Male	125 (36.4%)	22	25	17	50	11
Female	218 (63.6%)	32	28	11	110	38
Ethnicity ^{<i>b</i>}						
Caucasian/White	183 (53.4%)	37	49	13	49	35
African American/ Black	89 (25.9%)	13	1	14	52	9
Asian/ Pacific Islander	32 (9.3%)		2		28	2
Hispanic/Latino	12 (3.5%)		1		10	1
American Indian/ Alaskan/Native	2 (.6%)				2	
Multiracial	18 (5.2%)	4			12	2
Other	7 (2.1%)				7	

^{*a*} Students were provided the option to self-identify gender. ^{*b*} U.S. Census Bureau (2016): Caucasian/White 60.5%, African American/Black 12.7%, Asian/Pacific Islander 5.6%, Hispanic/Latino 17.8%, American Indian/Alaskan/Native 0.8%, Multiracial 2.6%

Project Design

All schools in this study followed state regulations in identifying gifted and talented individuals and provided a state-mandated personal education plan for students who met the criteria for gifted and talented classification.

School A: Public Academic Gifted and Talented Arts Program

School demographics revealed 51% high poverty^a and 58% minority students, and the student body was drawn from mixture of suburban and rural populations. The school was ranked 50th in the state with a 77% graduation rate^b. School A incorporated the district-wide Positive Behavior Support and Restorative Justice programs, which involved teams of teachers and students working together to encourage a positive, safe climate and redirect negative behaviors with peer counselors, school counselors, and mental health providers. The school philosophy centered on partnerships with the community to prepare students for productive citizenship in a changing world and encouraged self-motivation, life-long learning, self-expression, and tolerance of others.

Their mission was a united school community dedicated to nurturing students in a supportive positive environment, which met the needs of all learners. Particular importance was placed on support for the school's special needs population (the physically and mentally impaired, the gifted and talented, and the culturally and economically deprived). For psychosocial support, a school counselor was assigned to each grade level and students had access to a campus mental health provider.

Teachers of the core gifted academic classes held graduate degrees in gifted education (or were completing graduate certification in gifted education). However, the talented music, art,

^a High poverty is defined as 130% below the poverty line with a family income under \$15,171.

^b Due to the inclusive environment, graduation data was only provided on the entire school population; therefore, data was not representative of the gifted and talented population.

and theatre teachers had not received certifications or training in gifted and talented education or psychological development. The talented arts teachers held graduate degrees and education certifications in their respective fields of performing and visual arts.

School B: Public Academic Gifted and Talented Arts Program

Representative of School B's substantial rural population (the school served the majority of the district's pastoral and farm regions), 48% of students were high poverty and 24% were minority students. The school was ranked 75th in the state with an 81% graduation rate^c. High educational standards and unique training opportunities were prioritized to ensure rural students were prepared for college and career/technical opportunities. Nearly every teacher was "highly qualified," most teachers were National Board Certified, and two of the teachers had been finalists for state teacher of the year. The school offered over 30 dual-enrollment courses with four community colleges and local universities.

The school emphasized its counseling and guidance center for students struggling with social and emotional issues. A specific group of emotional supporters were designated for students who exhibited maladjustment or were experiencing depression, suicidal thoughts, or psychological/mental health issues. Over half of the guidance department was comprised of National Board Certified counselors, and mental health providers were also staffed full time.

The teachers of academically gifted students held a graduate degree in gifted education or had received graduate certification in education of the gifted. The talented arts teachers (music, art, theatre) had professional training and certification in their respective fields of performing and visual arts, but none had received training in education of the gifted or in the socioaffective needs of gifted and talented individuals. The talented theatre program was ranked second in the

^c Due to the inclusive environment, data was only provided on the entire school population; therefore, graduation data was not representative of the gifted and talented population.

state, and gifted language arts students placed first in state poetry competitions and third in national competition. Both the academically gifted and talented arts classes included curriculum projects designed to address and encourage social, moral, and emotional skills. The talented arts department also involved community experts as mentors for creatively talented students.

School C: Public Academic Gifted and Talented Arts Program

Faculty and administration in School C placed importance on building a positive and supportive atmosphere, where staff made sure students knew they were cared for and respected. The class sizes were small (15:1 student teacher ratio) and created a community environment. School C incorporated the district-wide Positive Behavior Support program, which encouraged a positive, safe climate and reinforcement of positive behaviors. School counselors and mental health providers were available on an as-needed basis. Overall school demographics were representative of its ethnically diverse suburban population, 66% were minority students, and 67% of students were high poverty. The school was ranked 74th in the state with a 79% graduation rate^d.

All of the educators teaching gifted academic classes held a graduate degree or graduate certification in education of the gifted. The talented music, art, and theatre teachers held degrees in their particular fields of the arts, but not one had received training in education of the gifted or in the unique social and emotional needs of gifted and talented individuals.

School D: Arts-Integrated Academic Charter Program (Urban)

According to school demographic data, 26% of students met the high poverty description and 59% of the student population identified as minority. The school was ranked as one of the best schools in the state and a top school in the nation with a 97% graduation rate. The school was comprised exclusively of gifted, talented, and high achieving students who passed rigorous

^d See comments attached to previous footnote.

examination procedures and were evaluated periodically for continued admissions. The school offered 22 Advanced Placement (AP) courses. The AP participation rate was 97%, and the pass rate was 84%.

The arts-integrated charter was a selective admission preparatory school and was among the first schools in the state for the gifted and talented. Applicants were admitted based on matrix points earned from a combination of admissions test scores and grade point average. Students had to maintain a specific grade point average in core classes in order to maintain admission to the school. In order to offer students a superior academic education, the school partnered with a local university and offered a dual enrollment program.

The mission of the school was to prepare high achieving students to be successful in life and encouraged student service with over 70 student organizations partnered with global volunteer networks. Coursework was designed to be high-caliber, demanding, challenging, and extremely rigorous. Faculty were highly trained and recruited from around the world and held terminal degrees in specialized fields. A sizeable portion of the faculty had certification in gifted or talented education and several held National Board Certification. The school offered honors, gifted/talented, and Advanced Placement classes. One hundred percent of students gained admission to national or international colleges and universities. Graduating students were expected to attend the most highly selective colleges and universities in the county. Each year, \$35-\$40 million in merit based college scholarships were awarded, and a sizeable percentage of the student body were ranked as nationally commended scholars.

The school highlighted its student support system, which included a student assistance team (counselors, coaches, social worker, and nurse), new student support counseling, and special services for students that required additional support. These teams addressed students

experiencing difficulty in school due to academic, social, and/or behavioral concerns. A peer assistance team was also available to mentor other students with academic, social, and emotional concerns.

School E: Creative and Talented Arts Charter Program (Urban)

This state conservatory for the talented arts offered rigorous professional arts training in various fields, including music (classical, jazz, vocal), media arts (filmmaking, audio production), culinary arts, theatre arts (musical, drama, theatre design), dance, visual arts, and creative writing and demanded academic excellence. Students were admitted by audition only, and the school was tuition-free to students who met audition requirements. The school was designated an Exemplary School by the national organization of specialized art schools (ASN). Similar to the previous charter school, demographic information of the school population revealed 27% of students were high poverty and 44% were minority. The school was ranked as one of the best in the state with a 98% graduation rate. The school offered AP courses, and the participation rate was 22% with a pass rate of 73%.

The school's college preparatory curricula centered on critical and creative thinking, problem-based learning, and interdisciplinary inquiry. Students participated in dual enrollment courses with local and national universities and were expected to progress to nationally ranked universities and conservatories. Faculty, as artist-teachers, possessed doctoral and advanced degrees and served as experts and intellectual mentors instead of classroom teachers. Demands were rigorous, expectations were extremely high, and a professional level of commitment to training and progress was expected from student-artists accepted to the exclusive school. The environment was high-stakes as students were considered on probationary status for the first few weeks of each school year. During this period, the faculty decided whether the student would

remain for the entire year. Throughout the year, students had to maintain a minimum “B” average or would be put on probation or “counseled out.”

None of the teacher-artists were certified in gifted education, and very few had attended professional development pertaining to gifted and talented individuals, and none had received training in the social and emotional needs of gifted and talented individuals. Interwoven throughout the school ideology and coursework were explicit ethical and socio-emotional components, development of self and life skills, and meaningful and functional collaborations with diverse peers. The school employed a mentoring system, whereby each student was matched with a faculty member who met weekly with the small group for all four years. The faculty prioritized creating a community and familial environment. However, the conservatory lacked a support system for students experiencing socioaffective difficulties or maladjustment issues. There were no counselors, and a part-time social worker was available only four afternoons each a week.

Psychometric Test Instrument

The instrument (psychometric scales), BarOn Emotional Quotient Inventory: Youth Version (BarOn EQ-i: YV; Bar-On & Parker, 2000) was used in this study to examine gifted and talented adolescents’ social development and emotional intelligence respectively.

BarOn EQ-i: YV (Bar-On & Parker, 2000)

The BarOn EQ-i: YV (Bar-On & Parker, 2000) is a youth form of the original Bar-On Emotional Quotient Inventory (EQ-i) for adults, the most widely used instrument of emotional and social intelligence for adults. The EQ-i:YV measures the level of emotional and social intelligence (functioning and ability) in young people ages 7–18. According to the Bar-On model, emotional intelligence (EQ) is comprised of emotional, personal, and social domains. The

psychometric instrument denotes areas of positive emotional and social functioning in addition to areas of developmental need.

The BarOn EQ-i : YV is a 60 item self-rating scale consisting of seven scales that assess intrapersonal abilities (e.g., self-awareness, assertiveness, independence, self-actualization); interpersonal abilities (e.g., empathy, social responsibility, interpersonal relationship); adaptability (e.g., adapting to changing environmental demands, flexibility, problem solving); stress management (e.g., stress tolerance, impulse control); general mood (e.g. ability to maintain a positive attitude, approaching problems either optimistically or pessimistically), Total EQ—overall level of emotional intelligence (e.g. general indication of emotional or social intelligence, effectiveness in dealing with daily demands); and positive impression (attempting to create an exaggerative impression of oneself).

The Bar-On EQ-i:YV uses a Likert-style rating scale of 1 to 4 for each item, with 1 = *Not True of Me (Never, Seldom)*; 2 = *Just a Little True of Me (Sometimes)*; 3 = *Pretty Much True of Me (Often)*; 4 = *Very Much True of Me (Very Often)*. There are 6 items for Intrapersonal scale, 12 items for Interpersonal scale, 12 items for Stress Management scale, 10 items for Adaptability scale, 14 for General Mood scale, 6 items for Positive Impression scale. The total EQ (emotional quotient) was derived from dividing each of the four main subscale totals (Intrapersonal, Interpersonal, Stress Management, Adaptability) by the number of items in each scale. Multiplying the sum of these four numbers by five provided the individual's total emotional and social intelligence score. Positive Impression score, a scale that identifies respondents who may give exaggerated and overly positive responses about themselves, is excluded (Bar-On & Parker). The approximate time for administration was about 30-45 minutes. The Bar-On EQ-i: YV is ideal for repeat administrations to measure the effectiveness of interventions or school

programs and as a screening instrument to identify possible developmental problem areas (Anderson, 2012; Bar-On & Parker; Lee & Olszewski-Kubilius, 2006). Additionally, the BarOn EQ-i:YV can be used to ascertain the emotional climate of a school environment (Freedman & Jensen, 2016). The results of the test provide scores for each of the following socioaffective scales (Bar-On & Parker, 2000):

Table 3

Bar-On EQ-i: YV

Social Development and Emotional Intelligence Psychometric Scales

EQ (Emotional Quotient)	Ability to deal with daily demands and overall happiness.
Intrapersonal	Ability to understand and express feelings and emotions.
Interpersonal	Ability to understand, empathize, and relate to others.
Stress Management	Ability to manage and control emotions.
Adaptability	Ability to manage change and solve problems.
General Mood	Ability to be positive and optimistic.
Positive Impression (validity)	Determines if an exaggerated positive impression exists.

Individual Developmental Profile Reports display results for each scale (tables and graphs), along with a total EQ score representing overall social and emotional functioning for each administration of the instrument. The developmental profile provides information about the individual's emotional and social functioning in terms of obtained scores. The total score and scale scores are presented as raw scores and standard scores. A standard score in the range of 90 to 109 indicates adequate emotional and social functioning. A score greater than 110 suggests

well-developed emotional and social skills, while a score of less than 90 suggests underdevelopment (see Table 4).

Table 4

Bar-On EQ-i: YV

Standard Scores

Range	Interpretive Guideline for Standard Scores
130+	Markedly High —atypically well developed emotional and social capacity
120-129	Very High —extremely well developed emotional and social capacity
110-119	High —well developed emotional and social capacity
90-109	Average —adequate emotional and social capacity
80-89	Low —underdeveloped emotional and social capacity, with some room for improvement
70-79	Very Low —extremely underdeveloped emotional and social capacity, with considerable room for improvement
Under 70	Markedly low —atypically impaired emotional and social capacity

Bar-On & Parker, (2000)

The test-retest reliability for the BarOn EQ-i: YV was examined using a test-retest interval of 3 weeks. Test-retest reliability coefficient for the total EQ was .89 and coefficients for the subscales were .84 for Intrapersonal, .85 for Interpersonal, .88 for Adaptability, .88 for Stress Management, and .77 for General Mood. The internal reliability coefficients for high school students, ages 16-18, for the total EQ were .89 for males and females. Internal reliability coefficients for subscales ranged from .82 to .90 for both males and females. The factorial validity confirmed that 40 items (10 items from each scale: Intrapersonal, Interpersonal, Stress Management, and Adaptability) all loaded at least moderately on their matching factors with

very low loadings on the other three factors. Correlations between the BarOn EQ- i: YV and other instruments measuring personality, neuroticism, extraversion, openness, agreeableness, and conscientiousness (NEO-Five Factor Inventory); measuring negative mood, interpersonal problems, ineffectiveness, anhedonia [inability to feel pleasure], and negative self-esteem (Children's Depression Inventory); measuring externalizing and internalizing problematic behaviors (Conners-Wells Adolescent Self-Report Scale); and measuring oppositional problems, cognitive problems, and hyperactivity (Conners Parent Rating Scale-Revised) all demonstrated that the BarOn EQ-i: YV identified core measures of social development and emotional intelligence in children and adolescents (Bar-On & Parker). The normative sample for the EQ-i:YV consists of a large number of children and teenagers from elementary, middle, and high schools across North America. Normative data is presented separately for males and females in four age intervals, 7-9 year-olds, 10-12 year-olds, 13-15 year-olds, and 16-18 year-olds (Bar-On & Parker, 2000).

Procedure

In face-to-face meetings with district superintendents, school CEOs, and school board members, the researcher explained the study in detail and secured participation. After obtaining study permission, principals and teachers in the five schools were invited to participate. The researcher met with all school leaders and teachers individually to provide instructions on study procedures and instrument administration. Students and parents were invited to participate in this study through a request letter sent by the classroom teachers (Appendix A). The permission letter clearly outlined that participation was voluntary and carried no reward, while decisions not to participate carried no penalty.

This study is a quasi-experimental design and a quantitative evaluation design. Cross-sectional research is being conducted—observing natural events by measuring variables repeatedly at different time points (not influencing what happens and the measures of variables are not biased because researcher is not present).

The study is treatment as usual because the schools are engaging in their normal education practice. The regular classroom teacher administered the psychometric instrument.

Data Collection

Data was collected over two academic semesters (fall and spring). The test-retest time period (approximately 15 weeks) was based on meta-analysis of socioaffective research studies (Schlaefli, et al., 1985), which concluded programs from about 3 to 12 weeks were best (less than 3 weeks proved ineffective). In the fall 2017 semester, the BarOn EQ-i: YV was administered to students who agreed to participate in the study and attended either School A, School B, School C, School D, School E's gifted and/or talented program. Parental consent was returned for 347 (72%) of approximately 485 eligible students. Of the 347 students, 4 did not participate due to absences, resulting in the final sample of 343 students.

The classroom teachers administered the psychometric scales at two time periods in order to examine the effects of the particular school program (environment) on the development of social and emotional attitudes, behaviors, and development over time. Teachers used a researcher-developed script to explain the purpose and directions of the psychometric scales to the students: *This is a study carried out by a teacher of the gifted who is working on a doctorate at the University of New Orleans. (CEO/Superintendent name) selected our class to participate in the study. It's an interest inventory (about 30-45 minutes); please take your time and be honest. We really want your feedback to guide future services and programs for gifted and*

talented students in our school, and it is completely anonymous, so your honesty and feedback is very important. Please read and follow the directions on the inventory carefully.

Data was collected through two methods. Due to the high-poverty populations of the schools participating in this study, not all classrooms had access to technology. Therefore, teachers were offered the choice of (1) using the online BarOn EQ-i: YV psychometric inventory developed by the Multi Heath Systems Online Assessment Center or (2) administering the BarOn EQ-i: YV pencil-paper version. The inventory settings were designed so that only data pertinent to the research project was collected, with no data being collected that could identify the participants. For the online administration (the two charter schools and one public school selected this method), a specific URL (website link) assigned to each student code was sent to the teachers, who then posted it in the student online portal for the students to complete during the school day. Participating students were required by the survey settings to complete the entire survey in one time period or the survey could not be submitted. For the pencil-paper administration (two public schools selected this method), the researcher printed a paper version of the inventory from the MHS Online Assessment Center (with only the assigned student codes as identifying information) and delivered it to the teachers, who then administered it in their classrooms. The pencil-paper assessments were collected by the researcher and manually keyed into the MHS Online Assessment Center platform. Upon submission of the assessment, the data was scored by the MHS Online Assessment Center platform, and a developmental profile report was produced for each student. BarOn EQ-i: YV profile reports graphically and numerically provided results for each scale, along with a total score representing overall social and emotional functioning, to summarize each administration (Time 1 and Time 2).

The BarOn EQ-i: YV was administered to the student participants in all school programs during the first month of their school year in September/October 2017 and during the middle of the school year in December/January 2018. After each administration (pre- and post-test), the seven completed scales of the BarOn EQ-i: YV were entered into online scoring software from Multi-Health Systems' Online Assessment Centre for scoring and producing student developmental profiles. In order to protect the anonymity of the students, teachers were provided with spreadsheets in order to assign student codes to each BarOn EQ-i: YV inventory. The code was the only identifier on the document the researcher received from the teachers. The University of New Orleans Institutional Review Board (IRB) deemed this research design to be of minimal risk to participants and compliant with regulations for conducting research using human participants (Appendix B). Student, teacher, and school identities remained anonymous, ensuring they could not be individually identified by any of the data collected for this research study. All participants completed the psychometric instruments with the knowledge that participation in this study was voluntary and they could stop participating at any time without penalty. The participants were also informed (participant permission letter) that results of the research study may be published, but no names would be used (Appendix C). Data collected through the MHS Online Assessment Center was secured in an online password-protected account which only the researcher could access.

Artifacts were gathered to define and differentiate the school environments and curricula. Based on these differences, this study examined whether a quantitative difference in the growth on these scales occurs. The quantitative categories (talented arts v. academic v. public v. charter) differentiate the change score (pre- to post-test) on the BarOn EQ-I: YV among the five schools.

Causation was not explored; this study simply examined if change scores co-occurred in a certain way with environment qualities.

Data Analysis

Data was analyzed using SPSS 25 to compare students' performances on the instrument scales by the type of program and by time of administration with the methods described below. The five schools were considered as five interventions (each school was an intervention = it was their curriculum) and each student was a paired-observation. Data derived from each of the scales on the BarOn EQ- i: YV were examined as outcome variables. Analysis utilizing SPSS 25 focused on change over time for each intervention (school environment), gifted adolescents as compared to the normative sample, and gender differences between gifted and talented adolescents.

Descriptive statistics were reported for the sample characteristics and for each of the scales on the psychometric instrument. Each scale raw score (EQ, Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood) for the BarOn EQ- i: YV was converted to national standard scores and compared with the normative data obtained for similar age adolescents in large, community-based, English speaking locations in the United States and Canada (Bar-On & Parker, 2000).

Repeated measures univariate analysis (ANOVA), one-way univariate analysis (ANOVA), and paired-samples *t*-tests with SPSS 25 were used for pre-test and post-tests comparisons, gender comparisons, and comparisons to normative groups. The overall schools were compared, and then individual schools were examined. Total ($n=343$) gifted and talented participants were compared to normative samples on each psychometric scale. Gender differences were examined in (1) the total study population, (2) in each school environment, and

(3) in comparison to the normative sample. School environments and gender differences were compared at pre-test (Time 1) and post-test (Time 2). Gender growth rate differences at each testing period were also compared.

To discern any impact of each intervention (school environment) on scores, differences between the students were further explored using independent-samples *t*-tests. These *t*-tests were designed to compare means of the same variable between two groups. Total EQ scores and subscale scores for each intervention (school) were compared to the corresponding scores for the other interventions combined. Analyses were performed separately for Time 1 and Time 2. The interpretation of the *p*-value for tests employed Tukey-Kramer (for unequal group sizes) and Scheffé methods. Alpha levels were adjusted for individual tests by dividing the critical *p*-values by the number of analytic comparisons. The Cronbach's alpha test of reliability gave values for the mean correlation (displayed as an alpha coefficient) between all item pairs found in each scale (Brace, Kemp & Snelgar, 2006).

Expected results were the null hypothesis—no effect of school program: no change over time on BarOn EQ-I: YV psychometric scales. Interpretation considered the relationship between intervention (environment) and social and emotional growth. Specifically, did growth in any dimension relate to the type of intervention or the environment? In comparison to the age normative sample, intellectually gifted and creatively talented students were expected to have lower mean scores on psychometric scales of socioaffective development.

Summary

This quantitative and quasi-experimental study with a nonequivalent groups design used socioaffective psychometric scales, BarOn EQ-I: YV, to gather data from 343 gifted students aged 16 years to 18 years currently enrolled in distinct gifted education programs (charter

talented and creatively gifted program, public academic program, public talented arts program, charter arts-integrated academic program). Specifically, the project compared five groups of gifted/talented students with the normative sample of students to determine whether development in these traits was equivalent to their academic and creative abilities. Various statistical analysis methods were used on this data set. The data was organized using one-way and repeated measures univariate analysis (ANOVA), independent-samples *t*-tests, and paired-samples *t*-tests for pre- and post-tests (Time 1 and Time 2) comparisons, gender comparisons, and comparisons to normative groups. Total gifted and talented participants were compared to age normative samples. Additionally, gender differences were examined in the total sample population, in each school environment, and in comparison to the normative sample. Gender growth rate differences at each testing period were also compared. Univariate analysis repeated measures and paired *t*-tests of 343 participants' pre-test (Time 1) and post-test (Time 2) scores in each of six categories (EQ, Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood) allowed for the total EQ score, scale scores, and pre-test post-test scores of each group to be closely examined and analyzed and compared against one another. The research questions were answered by either rejecting or failing to reject the null hypothesis as described in the next chapter.

Chapter Four: Research Findings

This chapter briefly summarizes the purpose of the study and presents the descriptive and inferential statistics of the sample. This chapter also includes a detailed description of the analyses of data obtained from the BarOn EQ-i: YV psychometric scales. The BarOn EQ-i:YV measured six dimensions of social development and emotional intelligence. In the present study, analysis was conducted on five variables (Intrapersonal, Interpersonal, Stress Management, Adaptability, General Mood), which summed to an Emotional Quotient (EQ) total scale score that was also used in the analyses. The purpose of this study was to examine (a) gifted students' developmental level of emotional and social abilities, (b) gender differences between gifted and talented individuals, (c) the impact of distinct high school gifted and talented programs on the social and emotional development of gifted adolescents, and (d) a wide range of gifted and talented individuals and school environments, particularly programs with diverse and inclusive student populations.

Descriptive and Inferential Statistics

Participants in this study were gifted and talented students ($n = 343$) enrolled in one of five different gifted and talented programs in a metropolitan area in the southeastern United States during the 2017-2018 school year. Student participants consisted of 39% from suburban/rural public schools ($n = 55$, $n = 53$, $n = 27$) and 61% from urban charter schools ($n = 160$, $n = 49$). Students ranged in age from 16 to 18 during the time of the study, and 64% were females and 36% were males. In this study, students identified themselves as 53.5% Caucasian/White, 26.0% as African American/Black, 9.4% as Asian, 3.1% as Hispanic/Latino, 0.2% as Native American, 5.3% as Multiracial, and 2.1% as Other (Table 5).

Table 5		
Demographic Comparisons		
Between Gifted Participants and Normative Samples		
	Gifted/Talented Sample	Normative Sample
BarOn EQ-i: YV(S)	<i>n</i> = 343	<i>n</i> = 1,461 ^a
Age	16-18	16-18
Gender ^b		
Male	36%	51.3%
Female	64%	48.7%
N/A, Other	---	---
Ethnic background ^c		
Caucasian/White	53.5%	50.8%
African American/Black	26.0%	5.0% ^d
Asian	9.4%	2.2%
Multiracial	5.3%	2.0%
Hispanic/Latino	3.5%	35.0%
Native American	0.2%	0.4%
Other	2.1%	2.1%

Note. ^aThe norming group of the BarOn EQ-i: YV consisted of 9,172 children and adolescents ages 7–18. For the normative comparison group in this study, 1,461 students ages 16–18 were comparable to the gifted adolescents in this study in age. The data for gender was based on these 1,461 adolescents; however, ethnic background was only provided on the entire normative sample.

^bStudents in this study were provided the option to self-identify gender.

^c Ethnicity information was missing for 1.5% of the normative sample.

^dIncluded both Black/African (3.8%) and Black/Caribbean (1.2%).

Analysis of Data

Research Question One

How do academically and artistically talented gifted students (ages 16-18) perform on psychometric scales of social and emotional intelligence and judgment? Do they differ from their age normative sample on the BarOn EQ-i: YV? Are there gender differences among gifted students?

1a. Do they differ from their age normative sample on the BarOn EQ-i: YV?

H₀1: There is no statistically significant difference between academically and artistically talented gifted adolescents and their age normative sample on the BarOn EQ-i: YV.

H_a1: There is a statistically significant difference between academically and artistically talented gifted adolescents and their age normative sample on the BarOn EQ-i: YV.

Comparisons to Normative Sample. Research question 1a was addressed using one-sample *t*-tests to compare raw score means of each psychometric scale. An alpha value of .05 was used to determine statistical significance. In order to understand the magnitude of the differences, Cohen' *d* effect sizes were calculated by finding the differences between the gifted means and normative means, and then dividing the result by the pooled standard deviation (a weighted average of each group's standard deviation and the average spread of all data points). For the BarOn EQ-i:YV, the total scale (EQ) was created by summing up all five subscales. The raw scores were then differentiated by gender. One-sample *t*-tests were employed to compare the present study's sample raw scores to BarOn EQ-i: YV normative raw scores (differentiated by gender) obtained from similar age adolescents (ages 16-18) in large, community-based, English speaking locations in the United States and Canada (Bar-On & Parker, 2000). See Table 6 for additional information.

Total EQ. In overall social development and emotional intelligence (EQ), the gifted male students in this study were comparable to male students in the normative data ($M=56.77$ vs. 56.46). However, gifted females had statistically significant lower mean scores than the normative sample ($M=55.99$ vs. 58.11) [$t(217) = -4.419, p < .001$] with a small effect size ($d = -.30$) for the mean difference, demonstrating they are less effective in dealing with daily demands and maintaining a positive outlook.

Intrapersonal. Gifted adolescents were considerably lower on intrapersonal ability compared to the normative sample. Raw scores means of the gifted students were lower than those of the norm group for both genders [male $t(124) = -2.17, p = .03$; female $t(217) = -6.68, p = .002$]. Small effect sizes for males $d = -.20$, and moderate effect sizes for females $d = -.46$ for these mean differences suggested that compared to the normative sample, the gifted males and females (to a greater degree) were less emotionally self-aware, self-controlled, and self-actualized and prone to emotional dependency and an inability to express feelings, beliefs, and thoughts.

Interpersonal. No significant differences were found for interpersonal abilities [$t(124) = -.84, p = .40$] between gifted males and individuals in the norm group with effect sizes ($d = -.08$) for the mean difference within the small category. However, gifted females [$t(217) = -3.11, p < .001$] were significantly lower than the norm data. A small effect size ($d = -.21$) indicates females were less able to show empathy, social responsibility, emotional closeness, and mutually satisfying relationships than female normative students.

Stress Management. Gifted students in this study were comparable to the normative students for stress management abilities. No significant differences were found for either gender [male $t(124) = .36, p = .72$; female $t(217) = -1.98, p = .05$] between the gifted students and students in the norm group with effect sizes for the mean differences all within the small category for both males and females (male $d = .03$, female $d = -.14$).

Adaptability. Both gifted males and females showed statistically significant higher mean scores on the adaptability scale [male $t(124) = 5.17, p < .001$; female $t(217) = 3.08, p = .002$] than the normative sample. Gifted male students in this study outperformed their age normative peers on adaptability scales ($M = 31.14$ vs. 28.94), as did the gifted females ($M = 29.48$ vs.

28.47). Although average in standardized score, strengths in adaptability indicate gifted adolescents displayed higher abilities in flexibility (adjusting to change), validating emotions (reality testing), and problem solving (identifying and implementing effective solutions).

General Mood is an important variable that facilitates the other components of social development and emotional intelligence (BarOn & Parker, 2000). Gifted participants in this study were significantly lower on general mood, optimism, and happiness compared to the normative sample [male $t(124) = -3.81, p < .001$; female $t(217) = -5.20, p < .001$]. Mean scores of the gifted students were lower than those of the norm group for both males ($M = 42.90$ vs. 45.49) and females ($M = 42.27$ vs. 45.03). Small effect sizes (male $d = -.38$, female $d = -.38$) for these mean differences suggested that the gifted males and females were slightly more prone to pessimism and had difficulty with feeling satisfied with life, enjoying themselves and others, and maintaining a positive attitude in the face of adversity.

In comparison to the BarOn EQ-i: YV heterogeneous normative sample, gifted and talented male students scored significantly below normative male students in intrapersonal ability and general mood (Table 7). Gifted and talented females in this study were found to be significantly lower than their normative counterparts in overall social and emotional functioning, intrapersonal abilities, interpersonal abilities, and general mood as measured by psychometric scales. However, both male and female gifted and talented students in the study outperformed their age normative peers on adaptability scales. The null hypothesis was rejected because statistically significant differences between gifted and talented adolescents and their age normative sample on the BarOn EQ-i: YV were found. See Table 6 for comparisons with the normative sample on each subscale. See Table 7 for detailed information on significant subscales.

Table 6					
Means, Standard Deviations, Effect Sizes, and Statistical Significance					
Between Gifted and Normative Sample on BarOn EQ-i: YV					
Scale	Gifted Mean (SD)	Normative Mean (SD)	<i>t</i>	<i>d</i>	<i>p</i>
Males	<i>n= 125</i>	<i>n=750</i>			
Intrapersonal Ability	13.44 (4.3)	14.28 (4.16)	-2.17	-.20	.032
Interpersonal Ability	38.38 (5.4)	38.78 (4.45)	-.84	-.08	.403
Stress Management	33.63 (6.3)	33.43 (6.90)	.36	.03	.719
Adaptability	31.14 (4.8)	28.94 (4.83)	5.17	.46	.000
General Mood	42.90 (7.6)	45.49 (5.96)	-3.81	-.38	.000
Total EQ	56.77 (7.0)	56.46 (6.84)	.497	.04	.621
Females	<i>n=218</i>	<i>n=711</i>			
Intrapersonal Ability	13.28 (4.37)	15.26 (4.16)	-6.68	-.46	.002
Interpersonal Ability	39.79 (4.59)	40.76 (4.45)	-3.11	-.21	.000
Stress Management	33.05 (7.19)	34.01 (6.90)	-1.98	-.14	.049
Adaptability	29.48 (4.83)	28.47 (4.83)	3.077	.21	.002
General Mood	42.27 (7.82)	45.03 (6.71)	-5.20	-.38	.000
Total EQ	55.99 (7.08)	58.11 (6.84)	-4.419	-.30	.000

d = Cohen's *d*.

Table 7

Gifted Male and Female Weaknesses

Means, Standard Deviations, and Effect Sizes on BarOn EQ-i: YV

Scale	Male and Female	<i>d</i>
Intrapersonal Ability	13.44 (4.3) and 13.28 (4.37)	-.33
It is hard to talk about my deep feelings		
It is hard to describe my feelings		
I have trouble telling others about my feelings		
General Mood	42.90 (7.6) and 42.28 (7.82)	-.38
I am not happy		
I do not like to smile		
I do not like my body		
It is difficult to hope for the best		
I do not feel good about myself		
I don't enjoy the things I do		
I don't know how to have a good time		
I don't think that most things will turn out okay		
Interpersonal Ability*	38.38 (5.4) and 39.79 (4.59)	-.38
I am not good at understanding how others feel		
I do not care what happens to others		
Having friends is not important		
It is difficult to respect others		
I do not like my friends		
I don't make friends easily		
I can't tell when people are upset or unhappy		

d = Cohen's *d*. *Although male means were lower, only females were significantly below compared to norms

1b. Are there gender differences among gifted students?

H₀2: There is no statistically significant gender difference between academically and artistically talented gifted adolescents.

H_a2: There is a statistically significant gender difference between academically and artistically talented gifted adolescents.

Comparisons Within Gifted Students. Research question 1b was addressed using one-way univariate analysis of variance (ANOVA), to compare male and female raw score means on each psychometric scale at pre-test (Time 1) and at post-test (Time 2). An alpha value of .05 was used

to determine statistical significance. Prior to conducting analysis, the assumptions of normality and homogeneity of variance were analyzed and met all assumptions for ANOVA. Homogeneity of variances indicated that the assumptions were correct.

Univariate ANOVAs for Time 1 scores were significant for the following two subscales: interpersonal ability [$F(1, 342) = 7.422, p = .007$] and adaptability [$F(1, 342) = 4.578, p = .03$]. On interpersonal ability, a higher mean score was found for females than males ($M = 39.79$ vs. 38.25), while males had a higher mean score on adaptability ($M = 30.93$ vs. 29.72). On the intrapersonal, stress management, and general mood ability scales, no differences were found between males and females. For total EQ, The male mean was higher than the female mean to a small degree ($M = 57.12$ vs. 56.43), but increase in mean scores could not be determined if the increase was due to the instrument or to insufficient sample size. Sample size was calculated with Fundamentals of Biostatistics online calculator (Brant, 2018) for two-sided tests using the mean of gifted group, the mean of normative group, sigma (common standard deviation), with alpha value of .05 and power of .70.

Univariate ANOVAs for Time 2 scores were significant for adaptability [$F(1, 342) = 9.48, p = .002$]. A higher mean score was found for males than females ($M = 31.14$ vs. 29.48). On the intrapersonal, stress management, and general mood ability scales, no differences were found between males and females. For total EQ, The male mean was slightly above the female mean ($M = 56.77$ vs. 55.99), but increase in mean scores could not be determined if the increase was due to the instrument or to insufficient sample size. On interpersonal ability, a marginally higher mean score was found for females than males ($M = 39.27$ vs. 38.38), but similarly, p could not be determined due to sample size and sigma value. The males showed slight developmental growth from Time 1 and Time 2 on interpersonal scores, whereas the females showed a slight decrease

in interpersonal scores between Time 1 and Time 2. Therefore, interpersonal abilities were not significantly different between genders at Time 2. See Table 8 for more information. The null hypothesis was rejected because statistically significant gender differences between gifted adolescents were found on interpersonal scales (Time 1) and adaptability scales (Time 1 and Time 2).

Table 8
All Gifted Males and All Gifted Females
Gender Means, Standard Deviations, Effect Sizes, and Significance
Between Males and Females on BarOn EQ-i: YV

Scale	Males	Females	<i>F</i>	<i>p</i>
Time 1	<i>n= 125</i>	<i>n=218</i>		
Total EQ	57.12 (7.10)	56.43 (7.26)	.726	**
Intrapersonal	13.72 (4.27)	13.17 (4.44)	1.235	--
Interpersonal	38.25 (5.79)	39.79 (4.59)	7.422	.007
Stress Management	34.10 (6.47)	33.63 (7.09)	.374	--
Adaptability	30.93 (5.22)	29.72 (4.89)	4.578	.033
General Mood	43.15 (8.15)	42.46 (7.73)	.614	--
Time 2				
Total EQ	56.77 (6.96)	55.99 (7.08)	.970	**
Intrapersonal	13.44 (4.33)	13.28 (4.37)	.101	--
Interpersonal	38.38 (5.38)	39.27 (5.07)	2.343	*
Stress Management	33.63 (6.27)	33.05 (7.19)	.578	--
Adaptability	31.14 (4.75)	29.48 (4.83)	9.477	.002
General Mood	42.90 (7.62)	42.27 (7.82)	.510	--

*The Male mean is below Female mean, but due to sample size and sigma value, *p* cannot be determined.

**The Male mean is above the Female mean, but due to sample size and sigma value, *p* cannot be determined.

--The Male mean is nearly equivalent to the Female mean, but due to sample size and sigma value, *p* cannot be determined.

Research Question Two

Does school environment impact gifted and talented students' socioaffective development on the BarOn Emotional Quotient Inventory: Youth Version (BarOn EQ-I: YV) psychometric scales?

H₀₃: There is no statistically significant association between environment and gifted and talented adolescents' socioaffective development.

H_{a3}: There is a statistically significant association between environment and gifted and talented adolescents' socioaffective development.

Changes Over Time By Program. Research question two was addressed using paired-samples *t*-tests to compare pre-test (Time 1) raw score means of each psychometric scale to post-test (Time 2) raw score means for the five distinct school environments (Public School A, Public School B, Public School C, Arts-Integrated Charter School, Charter School for the Creative Arts). An alpha value of .05 was used to determine statistical significance. In order to understand the magnitude of the differences, Cohen's *d* effect sizes were calculated by finding the differences between the gifted means and normative means, and then dividing the result by the pooled standard deviation (a weighted average of each group's standard deviation and the average spread of all data points). Sample size was calculated with Fundamentals of Biostatistics online calculator (Brant, 2018) for two-sided tests using the mean of gifted group, the mean of normative group, sigma (common standard deviation), with alpha value of .05 and power of .70.

Suburban/Rural Public School A. Mean scores from Time 1 to Time 2 were comparable on all psychometric scales [EQ $t(54) = 1.7$; intrapersonal $t(54) = .88$; interpersonal $t(54) = 1.1$; stress management $t(54) = .90$; adaptability $t(54) = .84$; general mood $t(54) = .89$]. Effect sizes for these mean differences were either negligible or within the small category ($d \leq .15$). The *p*-value could not be determined for any of the psychometric subscales between Time 1 and Time 2

due to sample size and sigma value. See Table 9 for more information. The findings indicated that, gifted and talented students in this school environment showed no change between Time 1 to Time 2 scores on BarOn EQ-i:YV psychometric scales, suggesting the environment had no impact on these developmental scales. The findings of the paired-samples *t*-tests revealed virtually no environmental influence on socioaffective development, as evidenced by changes on the BarOn EQ-i:YV scores. Therefore, the null hypothesis is that Public School A's environment had no significant impact on gifted and talented adolescents' social and emotional development.

Table 9
Suburban/Rural Public School A
Means, Standard Deviations, Effect Sizes, and Significance
Between Pre-Test and Post-Test on BarOn EQ-i: YV

Scale	Time 1 (SD)	Time 2 (SD)	<i>t</i>	<i>d</i>
Males	<i>n</i> = 22			
Females	<i>n</i> = 32			
Total EQ	58.74 (7.99)	57.56 (7.72)	1.67	.15
Intrapersonal	13.61 (5.10)	13.07 (4.80)	.875	.11
Interpersonal	40.72 (5.01)	40.24 (5.18)	1.08	.09
Stress Management	33.39 (7.23)	32.41 (8.39)	.901	.13
Adaptability	32.87 (4.70)	32.44 (4.73)	.844	.09
General Mood	43.98 (8.11)	43.48 (9.13)	.886	.06

d = Cohen's *d*.

Suburban/Rural Public School B. Mean scores from Time 1 to Time 2 were comparable on all psychometric scales [total EQ *t* (53) = 1.53, intrapersonal ability *t* (53) = 1.70, interpersonal ability *t* (53) = .95; stress management *t* (53) = .57; adaptability *t* (53) = -.48; general mood *t* (53) = 1.14]. Effect sizes for these mean differences were either negligible or

within the small category ($d \leq .21$). The p-value could not be determined for any of the psychometric subscales between Time 1 and Time 2 due to sample size and sigma value. See Table 10 for more information. The findings indicated that, gifted and talented students in this school environment showed no change between Time 1 to Time 2 scores on BarOn EQ-i:YV psychometric scales, suggesting the environment had no impact on these developmental scales. The findings of the paired-samples *t*-tests revealed virtually no environmental influence on socioaffective development, as evidenced by changes on the BarOn EQ-i:YV scores.. Therefore, the null hypothesis is that Public School B's environment had no significant impact on gifted and talented adolescents' social and emotional development.

Table 10
Suburban/Rural Public School B
Means, Standard Deviations, Effect Sizes, and Significance
Between Pre-Test and Post-Test on BarOn EQ-i: YV

Scale	Time 1 (SD)	Time 2 (SD)	<i>t</i>	<i>d</i>
Males	<i>n</i> = 25			
Females	<i>n</i> =28			
Total EQ	57.45 (7.53)	56.28 (7.22)	1.527	.16
Intrapersonal	14.45 (4.33)	13.53 (4.37)	1.697	.21
Interpersonal	38.79 (5.17)	38.23 (5.53)	.946	.10
Stress Management	33.62 (7.17)	33.21 (6.74)	.574	.06
Adaptability	30.34 (4.67)	30.58 (4.25)	-.478	.05
General Mood	43.67 (7.87)	42.53 (7.75)	1.141	.15

d = Cohen's *d*.

Suburban/Rural Public School C. Mean scores from Time 1 to Time 2 were comparable on all psychometric scales [EQ *t* (27) = -.47; intrapersonal ability scale *t* (27) = -.85; interpersonal

$t(27) = -.18$; stress management $t(27) = .13$; adaptability $t(27) = -.48$; general mood $t(27) = .33$]. Effect sizes for these mean differences were either negligible or within the small category ($d \leq .20$). The p-value could not be determined for any of the psychometric subscales between Time 1 and Time 2 due to sample size and sigma value. See Table 11 for more information. The findings indicated that, no change in scores on BarOn EQ-i:YV psychometric scales was found between Time 1 and Time 2 for gifted and talented students in this school environment, suggesting the environment had no impact on these developmental scales. The findings of the paired-samples t -tests revealed virtually no environmental influence on socioaffective development, as evidenced by changes on the BarOn EQ-i:YV scores.. Therefore, the null hypothesis is that Public School C's environment had no significant impact on gifted and talented adolescents' social and emotional development.

Table 11

Suburban/Rural Public School C

Means, Standard Deviations, Effect Sizes, and Significance

Between Pre-Test and Post-Test on BarOn EQ-i: YV

Scale	Time 1 (SD)	Time 2 (SD)	t	d
Males	$n = 17$			
Females	$n = 10$			
Total EQ	57.04 (8.42)	57.96 (6.95)	-.470	.12
Intrapersonal	13.30 (4.45)	14.19 (4.34)	-.854	.20
Interpersonal	38.44 (6.41)	38.70 (4.50)	-.184	.05
Stress Management	34.22 (7.45)	34.00 (7.58)	.127	.03
Adaptability	31.11 (5.22)	31.74 (3.66)	-.476	.14
General Mood	43.93 (9.88)	43.07 (9.35)	.326	.09

$d = \text{Cohen's } d.$

Urban Arts-Integrated Charter School. Mean scores from Time 1 to Time 2 were comparable on all psychometric scales [EQ $t(160) = .14$; Intrapersonal $t(160) = -1.37$; Interpersonal $t(160) = 1.4$; Stress Management $t(160) = .45$; Adaptability $t(160) = .98$; General Mood $t(160) = .13$]. Effect sizes for these mean differences were negligible ($d \leq .07$). The p -value could not be determined for any of the psychometric subscales between Time 1 and Time 2 due to sample size and sigma value. See Table 12 for more information. The findings indicated that, gifted and talented students in this school environment showed no change between Time 1 to Time 2 scores on BarOn EQ-i:YV psychometric scales, suggesting the environment had no impact on these developmental scales. The findings of the paired-samples t -tests revealed virtually no environmental influence on socioaffective development, as evidenced by changes on the BarOn EQ-i:YV scores.. Therefore, the null hypothesis is that the Arts-Integrated Charter School's environment had no significant impact on gifted and talented adolescents' social and emotional development.

Table 12
Urban Arts-Integrated Charter School
Means, Standard Deviations, Effect Sizes, and Significance
Between Pre-Test and Post-Test on BarOn EQ-i: YV

Scale	Time 1 (SD)	Time 2 (SD)	t	d
Males	$n = 50$			
Females	$n = 110$			
Total EQ	55.94 (6.30)	55.90 (6.78)	.137	.01
Intrapersonal	12.95 (4.14)	13.24 (4.22)	-1.371	.07
Interpersonal	38.95 (4.65)	38.59 (5.02)	1.410	.07
Stress Management	34.16 (6.64)	34.01 (6.27)	.453	.02
Adaptability	29.43 (4.90)	29.17 (5.17)	.984	.05
General Mood	42.53 (7.24)	42.48 (6.82)	.134	.01

$d = \text{Cohen's } d.$

Urban Charter School for Talented and Creative Arts. Mean scores from Time 1 to Time 2 were comparable on all psychometric scales [EQ $t(49) = .34$; intrapersonal $t(49) = -.35$; interpersonal $t(49) = -.12$; stress management $t(49) = 2.08$; adaptability $t(49) = -.39$; general mood $t(49) = -.96$]. Effect sizes for all mean differences were either negligible or within the small category ($d \leq .27$). The p-value could not be determined for psychometric subscales between Time 1 and Time 2 due to sample size and sigma value. See Table 13 for more information. The findings indicated that, gifted and talented students in this school environment showed no change in scores on BarOn EQ-i:YV psychometric scales from Time 1 to Time 2, suggesting the environment had no impact on these developmental scales. The findings of the paired-samples t-tests revealed virtually no environmental influence on socioaffective development, as evidenced by changes on the BarOn EQ-i:YV scores. Therefore, the null hypothesis is that the environment for the Charter School for Talented and Creative Arts had no significant impact on gifted and talented adolescents' social and emotional development.

Table 13
Urban Charter School for Talented and Creative Arts
Means, Standard Deviations, Effect Sizes, and Significance
Between Pre-Test and Post-Test on BarOn EQ-i: YV

Scale	Time 1 (SD)	Time 2 (SD)	<i>t</i>	<i>d</i>
Males	<i>n = 11</i>			
Females	<i>n = 38</i>			
Total EQ	55.43 (7.25)	55.14 (6.84)	.343	.04
Intrapersonal	13.12 (4.15)	13.29 (4.34)	-.355	.04
Interpersonal	39.43 (5.66)	39.55 (5.62)	-.123	.02
Stress Management	32.88 (5.60)	31.39 (5.42)	2.082	.27
Adaptability	28.76 (4.96)	29.00 (4.02)	-.389	.05
General Mood	40.18 (8.12)	41.14 (8.08)	-.958	.12

d = Cohen's d.

Research Question Three

Does participation in a distinct type of gifted and talented program (public academic and talented program v. charter creative arts gifted program v. charter arts-integrated academic program) impact gifted and talented adolescents' social development and emotional intelligence responses on the BarOn Emotional Quotient Inventory: Youth Version (BarOn EQ-I: YV)?

H₀4: There is no statistically significant difference in developmental profiles of social development and emotional intelligence among gifted adolescents attending distinct gifted and talented school programs.

H_a4: There is a statistically significant difference in developmental profiles of social development emotional intelligence among gifted adolescents attending distinct gifted and talented school programs.

Comparisons Among Programs. Research question three was addressed using univariate analysis of variance (ANOVA) to compare raw score means of each psychometric scale for the five distinct school environments (Public School A, Public School B, Public School C, Arts-Integrated Charter School, Charter School for the Creative Arts) at Time 1 and Time 2 (Table 14). An alpha value of .05 was used to determine statistical significance. The assumptions pertaining to normality and homogeneity of variance were assessed prior to analysis, and all assumptions for ANOVA were met. Homogeneity of variances indicated that the assumptions were correct.

Univariate ANOVAs for Time 1 scores [$F(1, 342) = 6.48, p < .001$] and Time 2 scores [$F(1, 342) = 6.53, p < .001$] were significant for adaptability scales (Table 13). Sheffé and Tukey-B Post-hoc analyses were then conducted to discover where the statistical differences existed. See Table 15 for more information. Sheffé is employed when sample sizes are unequal and

multiple differences in values are examined, and Tukey-B is selected when pairwise comparisons are sought. The output for both post-hoc tests produced the same results. School v. school rankings were the result of post-hoc tests, which indicated there was a significant difference in adaptability at Time 1 and Time 2 between Public School A and both charter schools: Arts-Integrated Charter School and School for Creative Arts Charter. Descriptive statistics for adjustment scales at Time 1 showed a significantly greater mean for Public School A than Arts-Integrated Charter School ($M=32.87$ vs. 29.43) and a significantly greater mean than School for Creative Arts Charter ($M=32.87$ vs. 28.76).

Similarly, Time 2 post-hoc analyses for adjustment scales revealed the value of Public School A (32.44) was significantly greater than Arts-Integrated Charter School (29.17) and significantly greater than School for Creative Arts Charter (29.00), suggesting that Public School A gifted and talented students demonstrate higher abilities in validating emotions, adjusting emotions and behaviors, and effective problem solving than their charter school gifted and talented peers. No other statistical differences were discovered among the five distinct school environments. The null hypothesis, stating that there are no statistically significant differences in developmental profiles of social development and emotional intelligence among gifted adolescents attending distinct gifted and talented school programs, was rejected.

Table 14

All School Programs Comparisons

Means, Standard Deviations, Effect Sizes, and Significance

Between Pre-Test and Post-Test on BarOn EQ-i: YV

Scale	<i>n</i>	Time 1 (SD)	<i>F</i>	<i>p</i>	Time 2 (SD)	<i>F</i>	<i>p</i>
Total EQ							
Public School A	54	58.74 (7.99)			57.56 (7.72)		
Public School B	53	57.45 (7.53)			56.28 (7.03)		
Public School C	27	57.70 (9.02)	2.214	.067	57.96 (6.95)	1.271	.281
Arts-Integrated Charter	160	55.94 (6.30)			55.90 (6.78)		
School for Creative Arts Charter	49	55.43 (7.25)			55.14 (6.84)		
Intrapersonal							
Public School A	54	13.61 (5.10)			13.07 (4.80)		
Public School B	53	14.45 (4.33)			13.53 (4.37)		
Public School C	27	13.74 (4.60)	1.312	.265	14.19 (4.34)	.349	.844
Arts-Integrated Charter	160	12.95 (4.14)			13.24 (4.22)		
School for Creative Arts Charter	49	13.12 (4.15)			13.29 (4.34)		
Interpersonal							
Public School A	54	40.72 (5.01)			40.24 (5.18)		
Public School B	53	38.79 (5.17)			38.23 (5.53)		
Public School C	27	38.41 (6.37)	1.576	.180	38.70 (4.50)	1.467	.212
Arts-Integrated Charter	160	38.95 (4.65)			38.59 (5.02)		
School for Creative Arts Charter	49	39.43 (5.66)			39.55 (5.62)		
Stress Management							
Public School A	54	33.39 (7.23)			32.41 (8.39)		
Public School B	53	33.62 (7.17)			33.21 (6.72)		
Public School C	27	34.56 (7.50)	.469	.758	34.00 (7.58)	1.692	.151
Arts-Integrated Charter	160	34.16 (6.64)			34.01 (6.27)		
School for Creative Arts Charter	49	32.88 (4.70)			31.39 (6.42)		
Adaptability							
Public School A	54	32.87 (4.70)*			32.44 (4.73)*		
Public School B	53	30.34 (4.67)			30.58 (4.25)		
Public School C	27	31.34 (5.39)	6.483	.000	31.74 (3.66)	6.528	.000
Arts-Integrated Charter	160	29.43 (4.90)*			29.17 (5.17)*		
School for Creative Arts Charter	49	28.76 (4.96)*			29.00 (4.02)*		
General Mood							
Public School A	54	43.98 (8.11)			43.48 (9.13)		
Public School B	53	43.68 (7.87)			42.53 (7.75)		
Public School C	27	43.96 (9.91)	2.025	.090	43.07 (9.35)	.629	.642
Arts-Integrated Charter	160	42.53 (7.24)			42.48 (6.82)		
School for Creative Arts Charter	49	40.18 (8.12)			41.14 (8.08)		

Table 15**School Programs Comparisons****Post Hoc Tests****Significance Between Pre-Test and Post-Test on BarOn EQ-i: YV**

Scale		<i>M</i>	<i>p</i>	<i>M</i>
Time 1				
Adaptability				
	Public School A	32.87	.001	Arts-Integrated Charter 29.43
			.001	School for Creative Arts Charter 28.76
Time 2				
Adaptability				
	Public School A	32.44	.001	Arts-Integrated Charter 29.17
			.009	School for Creative Arts Charter 29.00

School Rankings by Psychometric Scales. Univariate ANOVAs and post-hoc tests also provided school rankings on BarOn EQ-i: YV scales.

EQ. Gifted and talented students in Public School C (57.96) and Public School A (57.56) displayed the highest mean scores in overall social and emotional development followed by Public School B (56.28), Arts-Integrated Charter (55.90) and School for Creative Arts Charter (55.14).

Intrapersonal. Public School C (14.19) and Public School B (13.53) students scored the highest in intrapersonal abilities followed by School for Creative Arts Charter (13.29), Arts-Integrated Charter (13.24) and Public School A (13.07).

Interpersonal. Gifted and talented students in Public School A (40.24) and School for Creative Arts Charter (39.55) had higher mean scores in interpersonal abilities followed by Public School C (38.70), Arts-Integrated Charter (38.59) and Public School B (38.23).

Stress Management. Arts-Integrated Charter (34.01) and Public School C (34.00) means suggest gifted and talented students in these schools have higher stress tolerance and impulse control than Public School B (33.21), Public School A (32.41), and School for Creative Arts (31.39).

Adaptability. Gifted and talented students attending Public School A (32.44) and Public School C (31.74) displayed the highest mean scores in adaptability scales, demonstrating a better capability in reality testing, flexibility, and problem solving than Public School B (30.58), Arts-Integrated Charter (29.17) and School for Creative Arts Charter (29.00).

General Mood. Means of Public School A (43.48) and Public School C (43.07) suggest gifted and talented students in these schools have better capabilities in maintaining an optimistic outlook, having fun, and feeling satisfied and happy than Public School B (42.53), Arts-Integrated Charter (42.48) and School for Creative Arts Charter (41.14).

Gender Comparisons Between Public Schools and Charter Schools.

Differences between public school and charter school educational environments were further explored by comparing gender means in the respective school programs. Gifted and talented males attending suburban/rural public schools had greater mean scores on all psychometric scales than their gifted counterparts in urban charter schools, with the exception of intrapersonal abilities where means were comparable. Likewise females enrolled in public education programs scored higher on psychometric scales of EQ, interpersonal abilities, and adaptability than their gifted and talented peers in urban charter environments. However, means scores between female groups were similar for intrapersonal abilities, interpersonal abilities, and general mood. See Table 16 for additional information.

Table 16		
Comparisons Between Suburban/Rural Public Schools and Urban Charter Schools		
Means and Standard Deviations Between School Programs on BarOn EQ-i: YV		
Scale	Gifted Public Mean (SD)	Gifted Charter Mean (SD)
Males	<i>n= 64</i>	<i>n=61</i>
Total EQ	57.83 (7.20)	55.66 (6.56)
Intrapersonal	13.61 (4.27)	13.26 (4.42)
Interpersonal	38.80 (5.46)	37.93 (5.30)
Stress Management	34.20 (6.30)	33.03 (6.24)
Adaptability	32.19 (4.13)	30.03 (5.13)
General Mood	44.09 (7.43)	41.64 (7.67)
Females	<i>n=70</i>	<i>n=148</i>
Total EQ	56.50 (7.49)	55.75 (6.89)
Intrapersonal	13.36 (4.77)	13.25 (4.18)
Interpersonal	39.44 (5.05)	39.18 (5.09)
Stress Management	31.99 (8.48)	33.55 (6.47)
Adaptability	31.00 (4.58)	28.76 (4.79)
General Mood	42.04 (8.49)	42.38 (6.92)

Summary

In this chapter, the descriptive and inferential statistics for the study were presented for an overview of the sample's demographics. One-sample *t*-tests were employed to compare the present study's sample raw scores to BarOn EQ-i: YV normative raw scores. Univariate ANOVAs were used to analyze if there were differences between male and female raw score means on each psychometric scale at Time 1 and at Time 2. In order to investigate the differences between pre-test means and post-test means, paired-samples *t*-tests were used to compare the psychometric scales for each individual school environment (Public School A, Public School B, Public School C, Arts-Integrated Charter School, Charter School for the Creative Arts). Univariate ANOVAs analyzed raw score means of BarOn EQ-i: YV

psychometric scales for significant differences among the five distinct school environments (Public School A, Public School B, Public School C, Arts-Integrated Charter School, Charter School for the Creative Arts). Post-hoc analyses provided precise information about the statistical differences with school v. school rankings.

Research question one was assessed with paired-samples *t*-tests and univariate ANOVAs. The results of the analysis were statistically significant, indicating an overall weakness in intrapersonal ability and general mood compared to the normative sample. These findings suggest that compared to heterogeneous groups of students, gifted and talented students were not advanced in social and emotional development, as evidenced by lower scores on psychometric scales. Specifically, gifted females were significantly below in overall EQ, intrapersonal abilities, interpersonal abilities, and general mood. Gifted males fared a little better with comparable scores to normative students on overall EQ, interpersonal abilities, and stress management, but lagged significantly behind in intrapersonal abilities and general mood. Not surprisingly, both male and female gifted students had high levels of adaptability (problem solving and flexibility), which are common characteristics of gifted individuals. When compared to the gifted males, gifted females had lower adaptability and overall social and emotional functioning (EQ) but had higher interpersonal abilities (empathy, self-awareness, independence, self-regard, and self-actualization). However, gifted males slightly increased in interpersonal abilities at Time 2 and females decreased, thus interpersonal abilities was no longer significant between genders.

Paired-samples *t*-tests were employed to address research question two, comparing pre-test (Time 1) means to post-test (Time 2) means for the each of the distinct school environments. The results of the analysis found gifted and talented students in all five environments showed no

statistically significant change in scores on BarOn EQ-i:YV psychometric scales from Time 1 to Time 2, indicating that no particular school environment had a significant impact on social development and emotional intelligence.

Research question three was addressed using univariate ANOVAs to compare means among the five distinct school environments (Public School A, Public School B, Public School C, Arts-Integrated Charter School, Charter School for the Creative Arts). Additional statistical analysis was done using post-hoc tests, which were used to rank the schools and examine mean score differences at Time 1 and Time 2. Results revealed a significant difference between Public School A and (1) Arts-Integrated Charter School and (2) School for Creative Arts Charter for both Time 1 and Time 2, suggesting that Public School A gifted and talented students demonstrate higher abilities in validating emotions, adjusting emotions and behaviors, and effective problem solving than gifted and talented students in charter school environments in this study. To further analyze the differences between public school environments and charter school environments, one-sample *t*-tests were employed to analyze gender means for public schools compared to charter schools. Results indicated that gifted and talented students in public school environments demonstrated greater overall social and emotional development across most psychometric scales. The next chapter will discuss the connection between the findings, theory, and literature. In addition, limitations, recommendations for educational practice, and future research will be presented.

Chapter Five: Discussion, Conclusions, Implications, and Recommendations

Quantitative analysis of the participants' scores on psychometric scales led to several findings addressing (1) social and emotional abilities of gifted and talented students, (2) gender differences between gifted and talented adolescents, and (3) environmental impacts of gifted and talented school programs. In this chapter, the connection between the findings, literature, and theoretical frameworks are discussed. In addition, limitations and implications for practice and future research are presented.

Violent acts carried out by bright minds have come to the fore in recent years, especially with examinations of mass violence incidences in the United States concluding that 85% of the perpetrators were gifted individuals (Delisle, 2013; Rowley & Olenchak, 2005; Webb et al., 2005). The questions of psychological development, vulnerability and maladjustment however, have been contested. Most scholars of gifted education agree that several unique personality and intellectual characteristics distinguish gifted individuals, but scholarship in psychology and counseling have concluded that giftedness increases vulnerability; therefore, gifted individuals are more at-risk for psychological development problems and adjustment difficulties (Ambrose & Cross, 2009; Jackson & Peterson, 2003; Neihart, 2002). As neuroscientists, neuropsychologists, and educational psychologists construct an understanding of the symbiotic nature of adolescent development through theories such as, cognitive-developmental, psychoanalytic, socioaffective, and behavioral learning, there is a continued need to understand how these theories apply to intellectually and creatively gifted adolescents and a need to understand their social and emotional developmental patterns as part of education environments, curriculum design, and support systems (Changeux et al., 2005; Folsom, 2009; Granic et al., 2003; Greene et al. 2001; Haidt, 2001; Immordino-Yang, 2008; Immordino-Yang & Damasio,

2007; Immordino-Yang & Faeth, 2010; Kim & Sankey, 2009). Despite these recent research studies on high achieving gifted adolescents, scholars have not addressed the full spectrum of gifted and talented individuals or examined various school environments.

Gifted and talented students often face adjustment complications due to intrapersonal, interpersonal, and environmental problems. Their cognitive, psychological, social, and emotional development occurs in multidimensional layers at different rates and unevenly across ability levels, which exacerbates social and emotional difficulties. Research has shown that educational environments can have profound effects on social and emotional development (Britner & Pajares, 2006; McKenzie, 2005; Schlaefli, Rest & Thoma, 1985). However, if the environment is negative or harmful, the results can be detrimental to development (Davis & Rimm, 1994; George, 1992; Robinson, 2008).

A wide range of non-intellectual characteristics has often been the subject of much debate in the definitions of giftedness and curricula models of gifted education. However, literature in the field of gifted education is at odds in regards to psychosocial development and socioaffective issues for gifted adolescents, primarily because research has been inconsistent on the relationship between intellectual giftedness and emotional intelligence and social ability. As a result of the conflicting views and contradictory research, this research study was conducted in order to provide a deeper understanding of gifted socioaffective psychological development and possible school environmental effects. In order to validate conclusions about gifted social and emotional developmental, McCallister et al. (1996), Nail and Evans (1997), Lee and Olszewski-Kubilius (2006), suggested research should incorporate participants from diverse cultures and lower socio-economic populations and examine educational fit and environment. Therefore, this research

study examined the impact of school environments and purposely sampled gifted populations underrepresented in empirical research.

Theories of social cognition, emotional intelligence, and giftedness and creativity guided the design of this quasi-experimental quantitative study. In social cognitive theory, Bandura (1986) emphasized the triadic reciprocity of cognitive and personal factors, behavior, and environment as interconnected and interdependent. Goleman (1995) and Salovey and Pizarro (2003) established emotional intelligence as a theoretical framework that merges the cognitive and affective domains of development through regulating emotions; self-awareness; perceiving, understanding, and expressing emotion; empathy; and social competence. The focus of this study was to investigate the emotional and social developmental levels of five groups of academically gifted and creatively talented students ($n = 343$). Of particular interest was the development of the participants' emotional intelligence, intrapersonal abilities, interpersonal abilities, stress management, adaptability, and general mood. An additional focus of this study sought to develop an understanding of the impact of five distinct educational programs on the socioaffective development of these adolescents.

Research of gifted students' socioaffective development is limited. The few studies include gifted students who were identified as successful academic achievers and students selected for special programs (Meckstroth, 2002), while creatively gifted, minority, high poverty gifted, twice exceptional, and "at risk" or "maladjusted" gifted individuals are underrepresented (Peterson, 1997, 1999). This study sought to provide a better understanding of the socioaffective development of the full gifted spectrum, including academically, creatively, dually-classified, low SES, and minority gifted individuals. Furthermore, previous studies of giftedness and non-intellectual characteristics have found conflicting results (Andreani, 1987, 1992; Baker, 1995;

Eysenck, 1995; Lee & Olszewski-Kubilius, 2006; Neihart, 1991; Parker & Mills, 1996). A primary goal of this study was to provide lucidity by examining empirically underrepresented gifted populations in a variety of typical school environments and settings.

Five schools in two school districts agreed to participate in the study, and 343 of the possible 485 gifted and talented students completed the study. Students' performances on the six BarOn EQ-i:YV psychometric scales measuring social and emotional development were compared over time and by the type of program (charter school for the creative arts v. public academic and talented programs v. charter arts-integrated academic program).

Relationship to Literature and Findings

The primary hypothesis was that there would be no associations between intelligence and/or creativity and emotional and social development among the gifted students. The researcher hypothesized that gifted and talented students would have lower means on measures of emotional and social abilities compared to the heterogeneous normative sample. Results indicated that the social and emotional development of gifted and talented students was not as advanced as their intellectual and creative abilities, as evidenced by lower scores on psychometric scales. Specifically, gifted adolescents lagged significantly behind normative age-mates in intrapersonal abilities and general mood. In addition to these areas, gifted females also showed significant weakness in interpersonal abilities and overall socioaffective development. Findings support the theory (Dauber & Benbow, 1990; Jamison, 1993; Rothenberg, 1990; Tannenbaum, 1997) that giftedness heightens vulnerability to adjustment problems. Gifted and talented adolescents in this study were more vulnerable to adjustment problems and in need of support due to lower socioaffective development compared to their age-mates.

Additionally, the researcher expected no effect of school program and no significant change on BarOn EQ-I: YV scores between Time 1 and Time 2, in all five distinct gifted and talented environments. The null hypothesis was based on studies and theories in neuroscience and neuropsychology, which have established the symbiotic nature of the developmental domains outlined above; the processes of the brain are interdependent and intertwined and cannot be separated (Fogel, 2000, 2001; Granic, Hollenstein, Dishion, & Patterson, 2003; Immordino-Yang, 2011a; Immordino-Yang & Singh, 2013; Kim & Sankey, 2009; Lewis, 2000; Spencer & Schöner, 2003). Additionally, meta-analysis of research studies reveals that academic courses with no additional socioaffective development emphasis do not have an effect on development and that curricula must deliberately encourage psychological development in all socioaffective domains simultaneously in order to produce results (McKenzie 2005; Schlaefli, Rest & Thoma, 1985). Study conclusions support this hypothesis and previous neuroscience and neuropsychology research, finding that no particular school environment had a significant impact as evidenced by the lack of significant change in gifted and talented adolescent's socioaffective development scores.

Discussion

Social and Emotional Abilities of Gifted and Talented Students

Concerns over vulnerability of gifted and talented adolescents are well documented (see Clark, 2002; Seagoe, 1974; Webb, 1994). In a study of over 3,500 high school students, Schroeder-Davis (1999), found a negative correlation between high ability and social abilities. A number of studies show gifted individuals to be more inhibited and withdrawn than non-gifted students (Mills & Parker, 1998; Sak, 2004; Silverman, 1993). Dauber and Benbow (1990), Riyanto and Mönks (2002), Olszewski-Kubilius, Kulieke, and Krasney (1988) and Jamison

(1993) found that gifted individuals are at greater risk for development problems and adjustment difficulties than non-gifted peers, especially during adolescence and adulthood.

Using the Self-Perception Profile for Children (Harter, 1985), Hoge and McSheffrey (1991) found that gifted students scored lower than the normative sample group on social competence. Similarly, participants in this study demonstrated adjustment difficulties in social and emotional development, as evidenced by significantly lower scores on psychometric scales as compared to normative adolescents of their age. Roberts and Lovett (1994) found gifted adolescents, as compared to high academic achievers and a random non-gifted group, exhibited more negative reactions and physiological stress and greater irrational beliefs, self-oriented perfectionism, and negative affect. Likewise, gifted males in this study scored significantly lower in intrapersonal abilities and general mood, and gifted females were significantly below in intrapersonal abilities, interpersonal abilities, general mood, and overall emotional and social functioning as compared to normative age mates.

Similar to those of adolescents in Lee and Olszewski-Kubilius's (2006) study, participants displayed a singular strength in adaptability (problem solving and flexibility), which is an established trait of giftedness. However, the gifted adolescents in Lee and Olszewski-Kubilius were significantly below the age normative students in stress management, and they questioned whether deficiencies in stress management were a characteristic of all gifted populations or applicable only to their study population of affluent, high achieving, academically gifted students. In contrast, the diverse gifted and talented participants in this study were comparable to norms in stress management, which does not support the generalization of their findings to all gifted populations. Additionally, the participants in this study displayed weaknesses similar to those of gifted adolescents in Janos et al. (1985), Cross, Coleman, and

Stewart (1995), and Schutte et al. (1998) whose participants showed a correlation between feeling different from their age mates and negative social-affective adjustment, stating that they were often teased about their intelligence level, were painfully aware that they were different, had very few friends, and felt helpless about global issues. In this study, participants' responded that it was difficult to describe their feelings and had trouble telling others about their deep feelings. They also stated they did not feel happy or feel good about themselves, did not know how to have a good time and did not hope for the best or feel that things will turn out okay (see table 7). Gifted females also indicated negative interpersonal skills, such as not being able to care for others, understand how others feel, or make friends easily.

Gender differences between gifted and talented adolescents. Similar to findings of other researchers (Colangelo & Assouline, 1995; Harter, 2006; Kline & Zehms, 1996; Kling, Hyde, Showers, & Buswell, 1999; Moritz Rudasill et al., 2009; Reis, 2002; Robinson & Noble, 1991; Silverman, 1995), the female participants in this study were significantly different from males and demonstrated a decline in almost every domain of self-concept, self-confidence, interpersonal skills, self-satisfaction, and overall self-worth. However, in contrast to findings by Moritz Rudasill et al. (2009), they were not comparable to age normative females. This study and Lee and Olszewski-Kubilius examined gifted adolescents ages 16-18 with comparable results. When analyzing gender differences among the gifted and talented Lee and Olszewski-Kubilius's (2006) found that males had significantly higher adaptability mean scores, while females had higher mean scores on interpersonal ability. Similarly, gifted females in this study had significantly lower adaptability and social and emotional functioning (EQ) than male participants but higher interpersonal abilities (empathy, self-awareness, independence, self-regard, and self-actualization) than males, despite being significantly below females in the

normative sample. However, interpersonal scores were no longer significant between gifted males and females at Time 2 as gifted males showed slight gains while females decreased in interpersonal adjustment. This raises important questions for further exploration. In particular, whether this a period of concurrent growth for males and decline for females, and whether examining participants a third time at the end of the school year would reveal additional developmental patterns between genders.

Social and emotional development of the creatively gifted. The findings from this study support previous research that highly creative students often underachieve, have serious school problems, exhibit undesirable characteristics, and have difficulty in school settings (Amabile, 1989; Davis & Rimm, 1994; Goertzel & Goertzel, 1960; Oliphant, 1986; Rim & Davis, 1976; Ritchie, 1980; Robinson, 1980; Torrance, 1962). These problems can be compounded by the individual's high degree of sensitivity and a capacity to be disturbed, leading to a highly volatile situation (Torrance, 1962). When compared to other schools in this study, the School for Creative Arts ranked in the bottom on every social and emotional scale except interpersonal abilities (see Table 17). The scores of the creatively gifted and talented participants' social and emotional development were similar to findings in previous studies (Kim, 2008; Kim & VanTassel-Baska, 2010). They faced adjustment difficulties and behavior problems due to their unique creative personality characteristics and socioaffective needs that are not experienced by other gifted students (Kim, 2008). The population at this school consisted largely of minority, queer, special learning needs, and creatively talented adolescents. However, the demographics were similar to three of the four other schools in the study (one public school had fewer minority participants), therefore the low raw scores on the six psychometric scales can be attributed to the creatively talented population and environment.

Additional research studies (Smith, 1966; Torrance, 1962, 1981, 1988) have correlated high levels of creativity with egocentrism, uncooperativeness, resistance to authority, spontaneous hyperactive reactions, and physical or mental overreaction. One finding of interest to the researcher, was that creatively talented females in this study demonstrated a greater degree of social and emotional maladjustment than creatively talented males. In comparison to the BarOn EQ-i: YV heterogeneous normative sample, talented male students at the School for Creative Arts scored below normative male students for stress management ($M=32.09$ vs. $M=33.43$) and general mood ($M=42.36$ vs. $M=45.49$) but scored significantly above normative male students in interpersonal ability. The School for Creative Arts talented females were found to be significantly below their normative counterparts in overall social and emotional functioning, intrapersonal abilities, stress management, and general mood as measured by psychometric scales and scored below normative female students in mean scores for interpersonal ability ($M=38.89$ vs. $M=40.76$).

Future analysis might provide insight as to whether these major weaknesses are traits associated with creative giftedness, particularly in creatively gifted females. Of particular concern were EQ, intrapersonal abilities, and general mood, indicating creatively talented females were significantly underdeveloped in emotional self-awareness, self-control, self-actualization and struggled with dealing with daily demands, maintaining a positive outlook, and expressing feelings and thoughts. Talented females were exceedingly prone to pessimism and unhappiness and had great difficulty feeling satisfied with life, enjoying themselves and others, and maintaining a positive attitude in the face of adversity. They also displayed major weaknesses in empathy, social responsibility, emotional closeness, and mutually satisfying relationships. Future studies of talented and artistic academies are needed to determine whether

these are consistent findings and to further examine social and emotional characteristics of creatively gifted students, especially given the impact of exclusive environments. Future studies should delve into the findings that creatively talented female students were substantially underdeveloped on all social and emotional scales except for adaptability.

Table 17

**Means, Standard Deviations, Standard Scores, Effect Sizes, and Significance
Between School for Talented and Creative Arts and Normative Sample on BarOn EQ-i: YV**

Scale		Gifted Mean (SD)	Standard Score	Normative Mean (SD)	<i>t</i>	<i>d</i>	<i>p</i>
Males		<i>n</i> = 11		<i>n</i> =750			
Females		<i>n</i> =38		<i>n</i> =711			
Total EQ							
	Male	58.82 (6.19)**	104 Average	56.46 (6.84)	1.26	.36	**
	Female	54.08 (6.72)	89 Low	58.11 (6.84)	-3.70	-.59	.001
Intrapersonal							
	Male	15.00 (4.73)	101 Average	14.28 (4.16)	.51	.16	--
	Female	12.79 (4.16)	89 Low	15.26 (4.16)	-3.66	-.59	.001
Interpersonal							
	Male	41.82 (3.87)	108 Average	38.78 (4.45)	2.61	.73	.026
	Female	38.89 (5.92)*	92 Low Average	40.76 (4.45)	-1.94	-.36	*
Stress Management							
	Male	32.09 (3.73)*	97 Average	33.43 (6.90)	-1.19	-.24	*
	Female	31.18 (7.04)	93 Low Average	34.01 (6.90)	-2.48	-.41	.018
Adaptability							
	Male	31.45 (3.39)	107 Average	28.94 (4.83)	2.46	.60	.034
	Female	28.29 (3.94)	97 Average	28.47 (4.83)	-.28	-.04	--
General Mood							
	Male	42.36 (7.94)*	91 Low Average	45.49 (5.96)	-1.31	-.45	*
	Female	40.79 (8.19)	88 Low	45.03 (6.71)	-3.19	-.57	.003

d = Cohen's *d*.

* The gifted mean is below the norm value, but due to sample size and sigma value, *p* cannot be determined.

**The gifted mean is above the norm value, but due to sample size and sigma value, *p* cannot be determined.

--The gifted mean is nearly equivalent to the norm value, but due to sample size and sigma value, *p* cannot be determined.

High achieving gifted individuals and asynchronous development. Upon examination, several connections between high intelligence and underdeveloped social and emotional abilities were found in the Arts-Integrated Charter School. This links to Miller et al. (1994) as the participants' advanced intelligence may occur at the expense of emotional intelligence and social skills development for some gifted students. Lee and Olszewski-

Kubilius's (2006) study also found socioaffective development to be underdeveloped as an asynchronous characteristic of academic giftedness, finding that higher levels of academic ability correlated with lower levels of ethical judgment and reasoning. High achieving academically gifted students in this study and others (Tirri & Pehkonen, 2002; Gross, 1993, 2004) were significantly below age normative students. Freeman (1991) found that some characteristics of high achieving gifted children such as dominance, perfectionism, competitiveness, and need for achievement lead in negative social and emotional directions of existential angst, anxiety, depression, and suicidal thoughts. Gifted and talented students in the Arts-Integrated environment had to pass rigorous entrance exams and portfolio evaluations with high marks to be accepted into the advanced academic charter school. Additionally, the students underwent periodic reviews and could be dismissed from the school for underperformance. The constant demand for perfection (both internal and external) exacerbates psychological stress (Parker & Mills, 1996).

Several studies have shown a correlation between high intellect and psychiatric disorders (Garner, 1991; Gowan & Demos, 1964; Rowland, 1970). Tong and Yewchuck (1996) found gifted high school students to have significantly higher levels of anxiety than non-gifted students on the Piers-Harris Children's Self-Concept Scale. Likewise, Parker (1996) found mathematically gifted adolescents scored significantly higher than the normative group on Obsessive-Compulsive subscales of the Brief Symptom Inventory (BSI). The findings of this study closely connect to those of Dauber and Benbow (1990) and Riyanto (2002) who found their high achieving gifted students had a greater risk for social and emotional problems than moderately gifted students. High achieving gifted students were less socially adept and more introverted and inhibited than moderately gifted adolescents. According to Roedell (1986), the

more profound the intellectual giftedness, the more likely the individual was to experience maladjustment. The participants who attended the exclusive academic charter environment in this study were high achieving as a cohort and scored significantly below the normative data in every socioaffective developmental scale, highlighting the connection between gifted asynchronous development and the potential for adjustment problems (see Table 18). Similar to findings of other researchers (Garland & Zigler, 1999; Riyanto, 2002; Roedell 1986), the advanced intellect of participants in this study combined with heightened gifted sensitivities (i.e. perfectionism, non-conformity, idealism, developmental asynchrony, excitability) and unrealistic goals and expectations correlated with social and emotional maladjustment. Their low scores in all six scales of the psychometric instrument suggest support for Riyanto's conclusion that high achieving gifted students' low social competence can be attributed to their acute asynchronous development, which caused substantial intrapersonal and interpersonal stress. Perhaps the demanding and high-pressure environment heightened the negative impacts on socioaffective development.

Table 18

Between Arts-Integrated Charter School and Normative Sample on BarOn EQ-i: YV

Scale	Gifted Mean (SD)	Normative Mean (SD)	<i>t</i>	<i>d</i>	<i>p</i>
Males	<i>n</i> = 50	<i>n</i> =750			
Females	<i>n</i> =110	<i>n</i> =711			
Total EQ					
Male	54.96 (6.49)*	56.46 (6.84)	-1.63	-.22	*
Female	56.33 (5.89)	58.11 (6.84)	-2.72	-.28	.008
Intrapersonal					
Male	12.88 (3.31)	14.28 (4.16)	-2.30	-.37	.026
Female	13.41 (4.19)	15.26 (4.16)	-4.63	-.44	.000
Interpersonal					
Male	37.08 (4.21)	38.78 (4.45)	-2.31	-.01	.025
Female	39.28 (4.80)	40.76 (4.45)	-3.23	-.32	.002
General Mood					
Male	41.48 (7.68)	45.49 (5.96)	-3.69	-.58	.001
Female	42.94 (6.37)	45.03 (6.71)	-3.46	-.31	.001

d = Cohen's *d*. * The gifted mean is below the norm value, but due to sample size and sigma value, *p* cannot be determined.

Environmental Impacts of Gifted and Talented School Programs

Changes Over Time By Program

Environmental difficulties result from unrealistic expectations and harsh criticism from adults and peers and problematic school settings (George, 1992; Robinson, 2008), causing boredom, irritability, resentment, anxiety, hostility, and defiance for academically gifted students. No significant differences in social or emotional development from Time 1 to Time 2 were found resulting from participation in any of the five school environments in this study, which concurs with the findings of Lee, Olszewski-Kubilius, Donahue, and Weimholt (2007). Lee et al. (2006) found no significant results in leadership or civic behavior from participation in either a gifted service-learning program or an accelerated gifted academic program on a university campus during the summer for intellectually advanced gifted adolescents. Because no difference in change scores occurred, they posited that the summer program may not have been enough time to impact changes in attitudes, behaviors, and abilities. However, the current study examined gifted adolescents for twice as long as Lee et al. (2006) and Lee and Olszewski-Kubilius (2006) and no significant positive change in behaviors, attitudes, or abilities resulted from any of the school environments. Of note in this study, although not a significant difference, gifted and talented students in the present study showed a decrease in overall social and emotional development over the course of the semester.

The NAGC's 2010 Programming Standards stress the necessity of providing affective development linked to socio-emotional growth in self-understanding, social awareness and competence, cultural awareness and competence, and ethics. Likewise, studies in neuroscience and neuropsychology (Immordino-Yang, 2011a; Immordino-Yang & Singh, 2013; Kim & Sankey, 2009; Spencer & Schöner, 2003) have established the symbiotic nature of the cognitive,

social, and emotional processes of the brain. However, meta-analysis of research studies (McKenzie 2005; Schlaefli, Rest & Thoma, 1985) found that academic courses without continuous and methodical socioaffective emphasis had no effect on development. The findings from this study support the argument that school environments, which do not deliberately address the socioaffective domains simultaneously within the academic curriculum (cognitive processes), have no impact on developmental change. Despite the various ways the schools in this study purported to support the social and emotional development of their gifted and talented students, not one of the five school environments produced positive effects on the BarOn EQ-i:YV psychometric scales measuring interpersonal ability, intrapersonal ability, stress management, adaptability, general mood, and overall social and emotional intelligence.

Inclusive Environments v. Exclusive Environments

The public school gifted environments in this study were inclusive settings. The gifted language arts and mathematics classrooms were interspersed throughout the campus with regular education classrooms. The gifted and talented students participated in Advanced Placement, physical education, and elective classes with non-gifted adolescents. Whereas the charter school environments were comprised exclusively of intellectually advanced and creatively talented adolescents. Results revealed that gifted and talented students in public school environments demonstrated greater overall social and emotional development across most psychometric scales. The two charter environments in this study ranked lowest in social and emotional abilities, highlighting the connection between segregated gifted environments and the potential for adjustment problems.

The overwhelming consensus in the field of gifted education and development encourages clustering gifted and talented students with like-minded peers of similar abilities and

talents in order to provide intellectual, emotional, and social support (Gavin, Casa, Adelson, Carroll, & Sheffield, 2009; Olszewski-Kubilius, 2013; Pierce, Cassady, Adams, Speirs Neumeister, Dixon, & Cross, 2011; Plucker, Burroughs, & Song, 2010; Reis & Renzulli, 2004; Rogers, 2007). Although all environments in this study provided special clustered gifted and talented classes, the charter school populations enrolled only gifted and talented adolescents. However, in contrast to findings by Gavin et al. (2009) and Pierce et al. (2011), participants in this study enrolled in homogeneous settings did not show positive development or adjustment as compared to the normative sample or as compared to the public school gifted sample. Qualitative follow up investigations might provide insight as to whether exclusively gifted environments isolate gifted individuals from exposure to individuals with different abilities, beliefs, personalities, and characteristics or whether the homogeneity of the population heightened social and emotional adjustment needs. Numerous studies (Blatt & Kohlberg, 1975; Kohlberg, 1976, 1984; Turiel, 1983, 1997; Rest, 1993; Rest, Turiel, & Kohlberg, 1969) have shown that students must be exposed to cognitive disequilibrium, cognitive conflict activated by awareness of alternate viewpoints and noticing weaknesses in one's current thinking, and perspective taking, the ability to differentiate one's perspective from others, in order to stimulate socioaffective development. Perhaps the segregated environment prevented them from developing strategies used to assimilate in social settings with non-gifted peers. Neihart (2007) found inconsistent results on social and emotional development for gifted students in segregated environments: a few individuals showed positive results, some demonstrated no effect, and others exhibited damaging outcomes; however, the impact of homogenous settings did appear consistent in the present study. Instead, as Kulik and Kulik (1992), Leonard (2001), Marsh and Hau (2003), and Vogl and Preckel (2014) found, the gifted participants in this research study

demonstrated negative effects when grouped homogeneously as compared to gifted students in heterogeneous environments. Similarly, Schewean et al. (2006) found gifted individuals in a homogeneous school environment scored significantly lower on BarOn EQ-i: YV developmental scales of adaptability (adjusting to environmental demands, flexibility in managing change, and effectively solve problems) than gifted individuals in an inclusive school environment. Future research is needed to examine how each cluster grouping approach impacts gifted and talented students.

Limitations and Delimitations

The purpose of this study was to examine participants' social and emotional development while enrolled in diverse gifted and talented environments and to provide the reader with enough detail to be able to determine the applicability of the findings to other environments. The findings of this study are not generalizable. However, this study does have transferability because the school populations in this study are comparable to other moderate-sized metropolitan areas with 15-20% poverty and 40-50% minority populations with diverse gifted and talented program designs (Richmond, Memphis, Tampa, Albuquerque, and Orlando^e). It is also important to note only 209 of the possible 318 charter school students and 134 of the possible 167 public school students were able to complete the study. It is possible the impact to change scores could have been different had the remaining 142 students participated in the study. The participants in this study were representative of academically and creatively gifted and talented students as defined by the measures used to select them (see Chapter 3). Therefore, they do not represent students identified as gifted or talented by other means.

^e According to the July 1, 2017 U.S. Census Report

Implications for Practice

The prefrontal (affective) centers of the brain guide cognition and actions. Emotion-related brain processes are required for cognitive skills and knowledge to be transferred to real-world decision-making because they guide judgment and action (Anderson, Bechara, Damasio, Tranel, & Damasio, 1999; Damasio, 2005). However, in underserved gifted and talented populations, affective stressors (poverty, culture, emotional climate, physical environment) can lead to the cognitive processes of the brain inhibiting one another instead of supporting one another (Changeux, Damasio, Singer & Christen, 2005; Immordino-Yang, 2009; Immordino-Yang & Damasio, 2007; Immordino-Yang & Faeth, 2010). Combining external stressors and competing cognitive processes with the current school culture (performance-driven curriculum, high-stakes assessment, and intensely demanding academics) forms a potentially toxic environment that exacerbates a gifted or talented individual's asynchronicity. Each of the schools in this study purported to have various support systems to encourage healthy development of their gifted and talented students. However, no effect of school program in all five distinct gifted and talented environments was found. McKenzie (2005) and Schlaefli, Rest, and Thoma's (1985) meta-analysis that academic curricula without deliberate socioaffective emphasis had no effect on development and studies, and neurobiological research (Immordino-Yang & Damasio, 2007) found that knowledge acquisition and decision making; attention and responsiveness; memory and recall; and social functions and behavior are subsumed inside emotional thought.

A comprehensive paradigm of integrative frameworks is recommended. Numerous studies have researched moral, social, and emotional development in the areas of cognitive-development, psychoanalytic and emotional, and social learning; however, these three facets

have been studied separately leading to multiple divergent theories. Currently, an increasing body of research (Markus & Wurf, 1987; Fischer & Bidell, 1998; Spencer & Schöner, 2003; Thelen & Smith, 1998; Fogel, 2000, 2001; Lewis, 2000; Granic et al., 2003; Kim & Sankey, 2009) has established all three aspects as interconnected and interdependent. Modern theorists and educators have emphasized a merging of the schools of thought for comprehensive socioaffective development (Narvaez, 2006; Berk, 2009; Battistich, Solomon, Watson, & Schaps, 1997; Benson, Leffert, Scales, & Blyth, 1998; Lemerise & Arsenio, 2000; Narvaez & Rest, 1995). In essence, it takes a cognitive approach and care-based social reinforcement and modeling in order to encourage socioaffective development internalization. In addition, service-learning gives adolescents reasons for modifying their behavior and encourages them to adopt ethical standards (Berk, 2009). Although these three domains have been studied as divergent and mutually exclusive, integrative models of socioaffective education incorporate traditional ethical reasoning and service-learning within a caring environment for a truly comprehensive model (Holter & Narvaez, 2009).

School programs must consistently and deliberately weave socioaffective education into the academic curriculum in order to enable gifted individuals to face challenges and failures with emotional balance and appropriate coping mechanisms. The proposed paradigm combines all developmental theories and educational practices concurrently: Cognitive Development (cognitive disequilibrium: ethical, social, and emotional dilemma literature and dilemma discussions), Social Learning (community and conation: constructivist, service-learning, problem-based learning, community activism, mentors and apprenticeships) and Affective Development (classroom environment: humanistic, physically and emotionally safe, emotional intelligence) (see Figure 2). The affective component must be firmly established before

undertaking the other two because all information is processed in the frontal lobe emotional center before being processed in the cognitive centers (Green, 2014; Immordino-Yang, 2011b; Immordino-Yang, 2008; Immordino-Yang & Singh, 2013). The challenge with mandated curriculum is how to interweave all aspects seamlessly; however, it is crucial to simultaneously connect to each part of the brain that is responsible for processing information. Learning is an intellectual, moral, ethical, and social activity; thus the classroom should interweave all aspects in the educational curriculum.

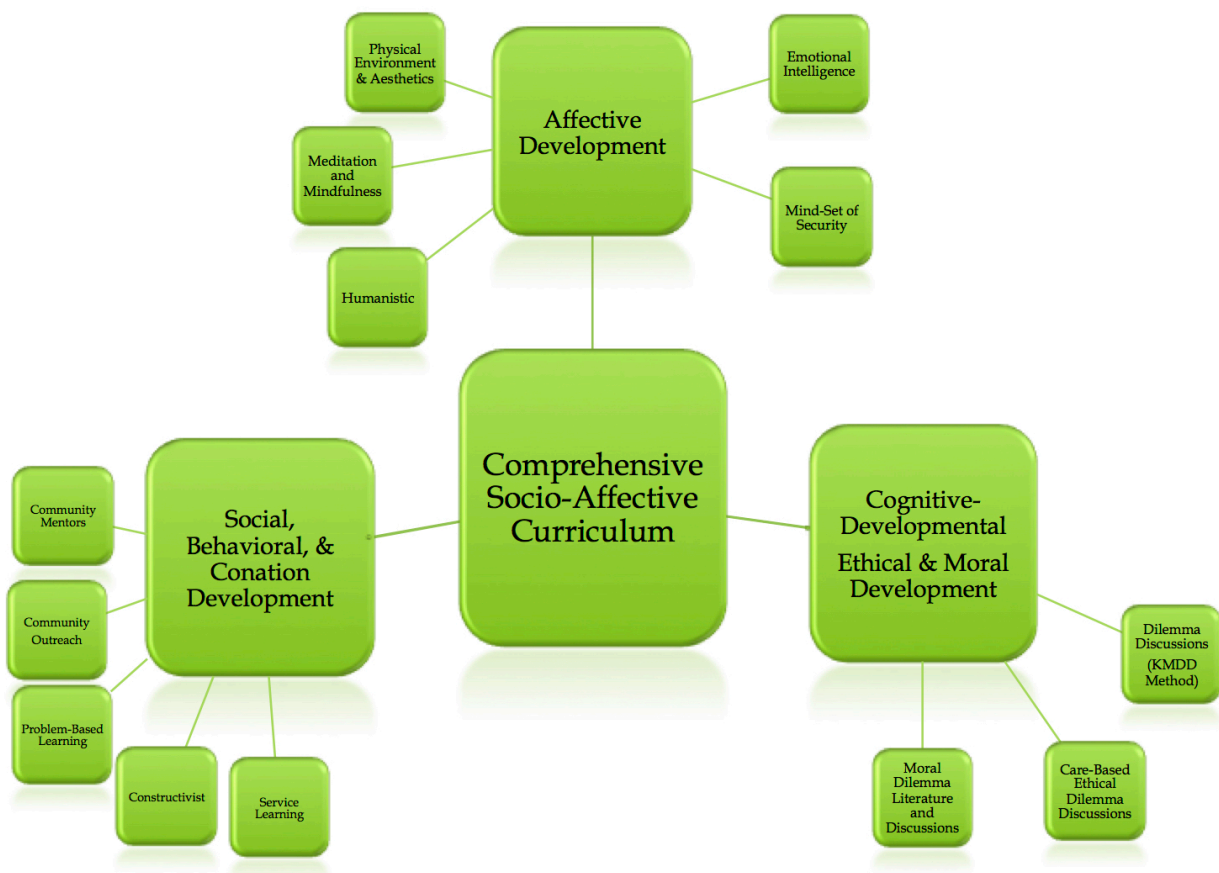


Figure 2. Comprehensive Paradigm of Integrative Frameworks

Recommendations for Future Research

Results from this study suggest that, compared to heterogeneous groups of students ages 16-18, gifted and talented students had socioaffective strengths only in adaptability, which is consistent with previous research (Lee & Olszewski-Kubilius, 2006), but also several areas of vulnerability that require additional investigation. Further research is needed to explore the finding that gifted females in this study showed weaknesses in every psychometric scale except for adaptability (which is an established traits of giftedness). Are these characteristics of gifted females from minority and/or high poverty populations? Future research should examine ethnicity, gender, and cultural background as it relates to social and emotional maladjustment. Furthermore, both male and female gifted and talented adolescents showed significant weakness in intrapersonal skills and general mood. What is the significance of these abilities and their relationship with giftedness and creativity? How do they impact socioaffective development and mental health in gifted students? How do these traits impact their ability to function successfully as adults? Future research is needed to further understand social and emotional development among minority, low income, and female gifted and talented students, particularly those enrolled in selective and exclusive environments.

Another finding of particular interest came to light when comparing public environments to charter environments. Students in public school environments demonstrated higher means on all psychometric scales than their gifted peers attending charter schools. This is especially interesting considering the charter environments were selective admission schools comprised of high achieving gifted and/or creatively talented individuals, whereas the public school environments were integrated settings with non-gifted individuals. Furthermore, artifacts revealed the charter schools had community support and apprenticeships, university connections,

advanced technology, and future opportunities, while the public schools were located in high poverty suburban and rural areas with limited access to technology, extracurricular enrichment, community mentors, and university connections. Are social and emotional weaknesses associated with exclusive and highly competitive gifted environments, particularly those environments defined by high expectations and demands? This is an important question for future studies. Post-hoc examinations found that students attending the School for the Creative Arts consistently ranked at the bottom compared to other environments in this study. Further studies should investigate multiple environments for the talented and creative arts to determine whether these are reliable findings.

The psychometric scales students completed as part of this study were administered in the first few months of the school year and again in the middle of the school year. Would different results been obtained if social and emotional abilities were measured again at the end of the school year? Investigations over a full school year might provide insight into the impact of continued exposure to each school environment on gifted adolescents' social and emotional development. Future studies should incorporate longitudinal designs to determine how gifted and talented students acquire social and emotional intelligence and behavior over extended periods of developmental time. Additional instruments measuring ethical development would perhaps provide a more complete socioaffective developmental picture of gifted and talented adolescents. Future investigations may also consider using a mixed-methods approach; perhaps qualitative data could better contextualize the environmental effects. Understanding how stakeholders conceptualize school climate and curriculum content may give insight to quantitative results. How do students view themselves in their schools? How are the students engaged in socioaffective development in the school environment? What are potential external

influences on development (e.g. mentors, community service, family)? Future mixed-methods research studies incorporating multiple instruments measuring all psychological socioaffective domains concurrently in longitudinal studies of educational fit and environment are needed to address these issues.

Conclusion

To date, little work has thoroughly examined minority, high poverty, learning-disabled, at-risk, maladjusted, and creatively gifted individuals in research studies of socioaffective development and giftedness (Peterson, 1997, 1999; Lee & Olszewski-Kubilius, 2006). As a result, scholarship endorses a narrative that characterizes gifted individuals as highly successful with advanced non-intellectual abilities. Without an adequate analysis of a wide range of gifted individuals and program models, we underestimate their adjustment difficulties, ultimately leading to a one-sided conceptualization of giftedness. Future research validating the findings of this study will remedy this gap by analyzing several diverse gifted and talented programs in various school environments with underserved student populations.

The results of this study are supportive of previous findings that socioaffective characteristics of gifted students are not as advanced as their intellectual capabilities, but instead they are developmentally vulnerable and at-risk for psychological problems and adjustment difficulties without effective support systems. This study concurs with the body of research suggesting numerous factors intertwine together to affect the psychological and socioaffective development and adjustment of gifted individuals, specifically educational fit and environment, areas of giftedness and talent, levels of intelligence and severity of asynchronicity. I expect this research to contribute to debates on adjustment difficulties in gifted adolescents and play an important role in shaping research on counseling, support systems, school environment and

curriculum, and violence prevention for gifted individuals in the coming years. However, long-term investigations are needed to determine the impact of school environment on whether gifted and talented adolescents are successful in adulthood or fail to fulfill their potential. Additional studies of socioaffective developmental patterns of non-intellectual abilities, such as ethical decision making, intrapersonal abilities, interpersonal abilities, adaptability, and stress management, within a variety of school environments are paramount to formulating support systems for gifted and talented students. Designing educational environments with a comprehensive neuroeducation approach to the components that support developmental health is a critical factor in the well-being of underserved and at-risk gifted and talented populations.

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Appendix A: Informed Consent Letter

PARENTAL LETTER OF CONSENT FOR MINORS
School Environment and Gifted Socio-Affective Development Research Project

Dear Parent:

I am a graduate student under the direction of Dr. Richard B. Speaker, Jr. and Dr. Pat Austin in the College of Education and Human Development at the University of New Orleans.

I am comparing the effects of participation in gifted and talented programs on the social and emotional intelligence of gifted adolescents.

I am requesting your child's participation in this district-approved study, which will involve collecting your child's results on a very brief social and emotional interest inventory during the school year of August 08, 2017 to May 26, 2018. Your child's teacher will give the interest inventory during the regular class day. It should take no more than 10 minutes. Sample questions are as follows:

	Very seldom true of me	Seldom true of me	Often true of me	Very often true of me
I enjoy having fun	1	2	3	4
I try to use different ways of answering hard questions	1	2	3	4

Your child's participation on the interest inventory is voluntary and completely anonymous. Your child's teacher will assign a number to each interest inventory, and the number will be the only identifier on the document I receive from the teacher. Only your child's teacher will know the number assigned to your child's interest inventory. I alone will score them, and the document will not be shared with anyone else other than me. The results of the study may be published, but your child's name, school, district, and state will never be used.

If you have any questions concerning the study or your child's participation in this study, please call me at (337)-288-2111 or Pat Austin at (504) 280-4824. If you have any questions about you or your child's rights as a participant in this study, you can contact Dr. Ann O'Hanlon at the University of New Orleans at 504-280-3990.

Sincerely,



Rebekah Granger-Ellis

By signing below, you are giving consent for your child _____ to participate in the above study.

Signature

Printed Name

Date

For further information:

Rebekah Granger-Ellis, UNO Doctoral Student, rgellis@my.uno.edu

Pat Austin, Ph.D., Professor and Graduate Coordinator, paustin@uno.edu

Department of C&I, University of New Orleans, 342-I Bicentennial Education Center

New Orleans, Louisiana, 70148

Phone: 504-280-4824

Appendix B: Standard Application for Research Review

Project Report and Continuation Application

(Complete and return to IRB, GP 2001. Direct questions to IRB administrator Jessica Grande 280-6013 or IRB Chairman Bobby Laird at 280-5454)



THE UNIVERSITY of
NEW ORLEANS

Committee for the Protection of
Human Subjects in Research
GP 2076

Phone: 504-280-6013

Fax: 504-280-6049

humansubjects.uno.edu

IRB # 02APR15 Current approval expires on: 3-15-2018

Review Type: Expedited Risk Factor: Minimal

PI: Pat Austin Department: Curriculum and Instruction Phone:

Co-Investigators: Pat Austin and Rebekah Granger Ellis

Project Title: Einstein or Columbine: Impact of School Curriculum and Environment of Gifted Students' Socio-Affective Development

Please read the entire application. Missing information will delay approval!

I. PROJECT FUNDED BY: UNO Proposal #

II. PROJECT STATUS: Check the appropriate box and complete the following:

- ☐ 1. Active, subject enrollment continuing; # of subjects enrolled: _____
- ☒ 2. Active, subject enrollment complete; work with subjects continues.
- ☐ 3. Active, work with subjects complete; data analysis in progress.
- ☐ 4. Project stat postponed. New start date: _____
- ☐ 5. Project complete. end date: _____
- ☐ 6. Project cancelled. No human subjects used.

III. PROTOCOL: Check one.

- ☒ Protocol continues as previously approved
- ☐ Changes are requested* List (on separate sheet) any changes to the approved protocol.

IV. UNEXPECTED PROBLEMS: (did anything occur that increased risks to participants?)

Number of events since study inception: 0 since last report: 0

Have there been any previously unreported events? Y?N N

If such events occurred, describe them (on a separate sheet) and how they affect risks in your study.

V. CONSENT FORM AND BENEFIT RATIO

Does new knowledge or adverse events change the risk/benefit ratio? Y?N N

Is a corresponding change in the consent form needed? Y/N N

VI. ATTACH A BRIEF, FACTUAL SUMMARY of project progress/results to show continued participation of subjects is justified; or to provide a final report on project findings.

VII. ATTACH CURRENT CONSENT FORM (only if subject enrollment is continuing); and check the appropriate blank:

- ☒ Form is unchanged since last approved
- ☐ Approval of revision requested herewith; (identify changes)

(Electronic) Signature of Principal Investigator Date February, 25, 2018

IRB Action:	<input type="checkbox"/> Continuation approved; Approval Expires: _____
	<input type="checkbox"/> Continuation disapproved
	<input type="checkbox"/> File closed
Signed: _____	Date _____

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Appendix C: Protecting Human Research Participants



VITA

Rebekah Granger-Ellis is a research fellow in the Department of Education and Human Development at the University of New Orleans. Her research includes socioaffective development, neuroeducation, socioaffective gifted education, gifted psychological development, and gifted/talented curriculum and instruction. Her 16 years in education of the gifted spans instruction in 1st through 8th grades, middle school gifted coordinator, district gifted curriculum developer and teacher mentor. She has taught university classes in literacy and language development, peace education, and moral development. As a national Educator of Distinction, state Teacher Leader, and two-time Teacher of the Year, she frequently presents in international, national, and regional conferences and offers instructional workshops for teachers and curricula developers.

Rebekah Granger-Ellis was raised in Lafayette, LA and Columbia City, IN. She received her undergraduate degree in 2001 from University of Louisiana at Lafayette with a major in Elementary Education. She earned her Masters of Education from University of Louisiana at Lafayette in 2003 in Education of the Gifted and Instructional Technology. At the time of this publication, she was employed by a public school system as a teacher, mentor, and curriculum developer for the gifted and talented.