

UNIVERSITY OF CALGARY

An Examination of the Relationship Between Trait-Based Emotional Intelligence and
Psychological Resilience in Youth with Asperger's Disorder.

by

Jo-Anne Burt

A THESIS SUBMITTED TO THE FACULTY OF GRADUATE STUDIES IN PARTIAL
FULLFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF
SCIENCE

DIVISION OF APPLIED PSYCHOLOGY

CALGARY, ALBERTA

December, 2007

© Jo-Anne Burt 2007

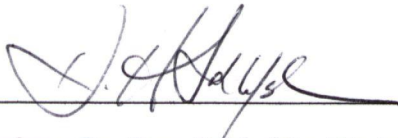
UNIVERSITY OF CALGARY

FACULTY OF GRADUATE STUDIES

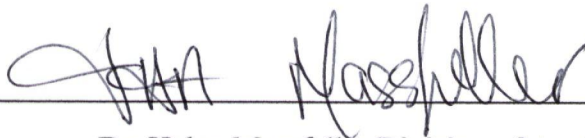
The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies for acceptance, a thesis entitled "An Examination of the Relationship Between Trait-Based Emotional Intelligence and Psychological Resilience in Youth with Asperger's Disorder" submitted by Jo-Anne Burt in partial fulfillment of the requirements for the degree of Masters of Science in School Psychology.



Supervisor, Dr. Vicki Schwan Division of Applied Psychology



Supervisor, Dr. Don Saklofske Division of Applied Psychology



Dr. Helen Massfeller Division of Applied Psychology



External Examiner, Dr. Eugene Kowch Division of Teacher Preparation

11/29/07

Date



University of Saskatchewan
Behavioural Research Ethics Board (
Beh-REB)

Certificate of Approval

PRINCIPAL
INVESTIGATOR Vicki
Schwean

DEPARTMENT
Educational Psychology and Special
Education

BEH#
06-
106

STUDENT RESEARCHERS

Janine Montgomery, Danielle Dyke, Jo-Anne Burt, Candace Kohut,

Yvon ~~SPONSOR~~
UNFUNDED

TITLE

Emotional Intelligence and Resiliency in Individuals with
Asperger Disorder

CURRENT APPROVAL
DATE 29-May-2006

CURRENT RENEWAL
DATE 01-May-2007

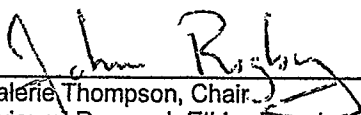
The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided here is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS

The term of this approval is five years. However, the approval must be renewed on an annual basis. In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: <http://www.usask.ca/research/ethical.shtml>

APPROVED


Dr. Valerie Thompson, Chair
Behavioural Research Ethics Board
University of Saskatchewan

Ethics Office
University of Saskatchewan
Room 306 Kirk Hall, 117
Science Place Saskatoon SK
S7N 5C4
Telephone: (306) 966-2084



UNIVERSITY OF
CALGARY

MEMO

Conjoint Faculties Research Ethics Board (CFREB)

Research Services Office

Main Floor, Energy Resources Research Building

Research Park

Telephone: (403) 220-3782

Fax: (403) 289-0693

Email: bonnie.scherrer@ucalgary.ca

To: Dr. Vicki Schwan
Division of Applied Psychology,
Faculty of Education

Date: June 23, 2006

From: Dr. J. Kent Donlevy, Acting Chair
Conjoint Faculties Research Ethics Board

Re: Certification of Institutional Ethics Review – "Emotional Intelligence and Resiliency in Individuals With Asperger Disorder"

On behalf of the Conjoint Faculties Research Ethics Board (CFREB), this is to acknowledge receipt of the proposal, consent forms, and recruitment materials submitted to the University of Saskatchewan Behavioural Research Ethics Board for the above-named project, and copy of the ethical clearance from the University of Saskatchewan dated 29 May 2006. The University of Calgary accepts your application in this format and herewith confirms ethical clearance. Accordingly, a copy of this letter should be attached to your original clearance granted by the University of Saskatchewan.

In accordance with the approval issued by the University of Saskatchewan REB, you have been named as principal investigator for this project on the University of Calgary ethics clearance. Referral for individuals with questions regarding their rights as participants, however, will be to the University of Saskatchewan REB (as outlined in the study consent forms), since there is a student researcher, Ms. Janine Montgomery, at the University of Saskatchewan, and the original approval was issued by that institution's REB; we have advised the University of Saskatchewan Behavioural REB that we attorn to their jurisdiction with respect to the action of the student researcher in this instance.

The CFREB should be kept apprised of any modifications to the protocol that are authorized by the principal investigator's institution. A progress report must be submitted 12 months from the date of this letter, and you should provide the expected completion date for the project. A form for this purpose is available at the following website: http://www.ucalgary.ca/UofC/research/html/ethics/info_facres.html
Written notification must be sent to the CFREB when the project is complete or terminated.

In closing, let me take this opportunity to wish you well in your research endeavors.

Sincerely,

J. Kent Donlevy, M.Ed., LL.B., Ph.D., Assistant Professor
Faculty of Education and
Acting Chair, Conjoint Faculties Research Ethics Board

Abstract

This study sought to explore the relationship of trait-based emotional intelligence to psychological resilience in 23 youth, ages 16 to 21 years, clinically diagnosed with Asperger's Disorder. Results indicated that youth with the disorder performed lower on several quotients of trait-based emotional intelligence, as measured by the BarOn EQ:i-S, in comparison to the BarOn EQ:i-S normative sample. Significant relationships were found to exist between several emotional quotients and measures of psychological resilience. Total levels of trait-based emotional intelligence (Total EQ), for example, were related to measures of psychological resilience including self-perception of relationship quality, emotional reactivity, and personal adjustment while General Mood EQ was related with satisfaction with life. The implications of these results, as well as the other results obtained, are discussed.

TABLE OF CONTENTS

Approval Page	ii
Abstract.....	iii
Table of Contents	iv
List of Tables	vi
LITERATURE REVIEW.....	1
History of Asperger's Disorder	1
Asperger's Disorder	2
Theoretical Perspectives of Social/Emotional Deficits	4
Emotional Intelligence	7
Trait-Based Emotional Intelligence	8
Criticisms of Trait-Based Emotional Intelligence	10
Incremental Validity of Trait-Based Emotional Intelligence	11
Psychological Resilience	12
Factors of Psychological Resilience	13
Trait-Based Emotional Intelligence and Psychological Resilience	15
Trait-Based Emotional Intelligence, Psychological Resilience, and	16
The Present Study	17
Research Questions	17
METHOD	18
Participants	18
Screening Measures	18
Outcome Measures	20
Procedure	25
RESULTS	26
Descriptive Analyses	26
Between Groups Comparisons	36
Correlations	41
DISCUSSION	49
Self-Report	58
Overlap Between Constructs	60
Limitations	61
Implications and Conclusions	62
Summary	64
REFERENCES	66
APPENDIX A: Participant Information Questionnaire	78
APPENDIX B: Adult Consent Form	81
APPENDIX C: Minor Consent Form	82

APPENDIX D: Clinician Script	84
APPENDIX D: Certification of Institutional Ethics Review	86

LIST OF TABLES

TABLE 1: Mean Performance Scores of Participants	28
TABLE 2: Participant Score Summaries One	30
TABLE 3: Participant Score Summaries Two	33
TABLE 4: Normative Means and Standard Deviations	37
TABLE 5: Male Between Group Comparisons	39
TABLE 6: Female Between Group Comparisons	40
TABLE 7: Correlation Matrix Between Trait-Based Emotional Intelligence	43
TABLE 8: Correlation Matrix Between Satisfaction with Life	46
TABLE 9: Correlation Matrix Between Psychological Resilience	48

Asperger's Disorder, as identified in both the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychological Association, 1994) and the *International Classification for Diseases* (ICD; World Health Organization, 1992), is a pervasive developmental disorder characterized by impairments in social interaction, communication, behaviour, and language. Differing from other pervasive developmental disorders, those with Asperger's Disorder do not exhibit significant impairments in speech and language and tend to possess average, and sometimes above average, levels of intelligence. These individuals are also likely to acquire substantial amounts of information about selected topics and, similarly, develop fanatical interests (Klin, & Volkmar, 2003; Wing, 1981).

The History of Asperger's Disorder

Autism, the prototypical pervasive developmental disorder, was first introduced by Kanner in 1943. He described a pattern of behaviour characterised by severe impairments in social interaction and communication as well as resistance to change as "early infantile autism" (Kanner, 1943; Wing, & Potter, 2002). One year later, in 1944, Asperger described an "autistic psychopathology" while studying a small group of children with difficulties socially integrating into groups (Asperger, 1944). Despite preserved intellectual skills, Asperger reported that these children showed paucity of non-verbal communication, poor empathy and a tendency to intellectualize emotions, an inclination to engage in long-winded and formalistic speech (acting like 'little scientists'), and interests that involved unusual topics (summarised by Klin, & Volkmar, 2003).

Asperger's work became popularized in the 1980's when Wing (1981) published a series of case studies focusing on children who exhibited similar symptoms. Klin and

Volkmar (2003) suggest Wing's codification of the condition she termed Asperger's syndrome lead to a resurgence of interest in this diagnostic concept. In the early 1990's Asperger's Disorder was introduced into both the DSM and the ICD.

Asperger's Disorder

According to the DSM-IV (APA, 1994), Asperger's Disorder is characterized by social impairment, communication difficulties, play and imagination deficits, and a range of repetitive behaviours and interests. Estimates for the prevalence of the disorder range from 1 in 500 children (Tantam, 2003) to more conservative estimates of 2 in 10,000 children (Fombonne, & Tidmarsh, 2003); however, epidemiologic research has only begun to examine the prevalence of this disorder and, consequently, data are still scarce. Growing evidence suggests that autism and Asperger's Disorder are of genetic origin (Baron-Cohen, & Wheelwright, 2004). This evidence is strongest for autism, stemming from twin and behavioural genetic family studies (see: Bolton, & Rutter, 1990), but family pedigrees of Asperger's Disorder also implicate heritability (Gillberg, 1991).

The primary deficit of Asperger's Disorder is considered to be a qualitative impairment in social relationships. In other words, those with Asperger's Disorder appear not only socially isolated but exhibit an abnormal range of social interactions that cannot be explained by other factors like shyness, short attention spans, or aggressive behaviours (Szatnari, 1991). These impairments may include a general disregard for other people, an inability to comprehend social cues and socially/emotionally appropriate behaviours, difficulties sensing the feelings of others, and a sense of detachment from others (Szatnari, 1991; Tantam 1991; Wing, 1981).

Unusual cognitive styles and behaviours, like those characteristic of Asperger's Disorder, contribute to peer interaction difficulties (Ehlers, & Gillberg, 1993). For instance, an individual with Asperger's Disorder may develop an extreme interest in meteorology. An interest in this subject is not problematic in itself but becomes an issue when, rather than interacting with others, it becomes the sole activity in which that person engages. Individuals with Asperger's Disorder may also be more object- than people- focused and, similarly, attend more to details rather than to 'the big picture' (Baron-Cohen, 2000). Modern society, which expects age-and contextually-appropriate social behaviours and cognitions, as well as attention to both global information and detail, is not sympathetic to this unusual style of behaviour. Rather, the inherent difficulties of interacting with others the person with Asperger's Disorder faces may be amplified, and even perpetuated, by society's demands and expectations.

The failure to connect socially (and by extension, emotionally) that is characteristic of those with Asperger's Disorder has been linked with negative developmental outcomes such as chronic unemployment and underemployment, an inability to live independently, and a lack of friendship (Gustein, & Whitney, 2002). Individuals experiencing these difficulties are also at risk for increased levels of anxiety, stress, depression, and mood regulation difficulties, as well as drug and alcohol abuse (Laurent, & Rubin, 2004; Tantam, 2003; Wing, 1981). Likewise, Tantam (2000) suggests that people with Asperger's Disorder often become victim to teasing, physical bullying, and other forms of victimization; these negative experiences may lead to long standing frustration, poor self-esteem, and suspiciousness of others.

Theoretical Perspectives of Social/Emotional Deficits

Several theories have been developed to explain the associated social and emotional deficits displayed by those with Asperger's Disorder. The most popular of these include deficits in theory of mind, executive functioning, and weak central coherence. These are discussed below.

Theory of mind may be defined as the ability to impute mental states to oneself and others (Baron-Cohen, Leslie, & Frith, 1985). These abilities enable an individual to draw conclusions about the intentions, feelings, and beliefs of others; empathize with others; and, engage in pretend and imaginative play (Wade, Tavis, Saucier, & Elias, 2004). Those without a well-developed theory of mind are often thought of as 'mind blind' (Frith, & Happe, 1994). Research suggests that those who are 'mind blind' experience great difficulty recognizing emotional states, establishing shared attention with others, and maintaining appropriate levels of eye contact (Baron-Cohen, Leslie, & Firth, 1985; Dyck, Ferguson, & Shochet, 2001). An inability to form internal representations and generalize them in real-life situations is thought to impede the capacity to acquire this skill (Leslie, & Firth, 1990).

Research is mixed in regards to examining this ability in people with autism and Asperger's Disorder. Some studies suggest that those with autism and Asperger's Disorder perform lower than average on theory of mind tasks (e.g. Baron-Cohen, Leslie, & Firth, 1985; Beaumont, & Newcombe, 2006; Heavey, Phillips, Baron-Cohen, & Rutter, 2000). Other studies report that these individuals perform as well as non-disordered controls (e.g. Ozonoff, Pennington, & Rogers, 1991). Still other research suggests that theory of mind

ability varies largely in relation to intelligence (Dyck, Ferguson, & Shochet, 2001). Further investigation is required before robust conclusions may be made.

The ability to maintain an appropriate problem solving set to obtain a future goal, termed executive function, has long been thought of as a prominent explanatory theory for behaviours characteristic of Asperger's Disorder and autism (Griffith, Pennington, Wehner, & Rogers, 1999). Those with autism, for instance, sometimes experience difficulty shifting social behaviour and conversational topics to meet changing contextual demands – a common socially-based executive function (Landa, & Goldberg, 2005). Deficits in flexibility, self-monitoring and self-planning, as well as impulsiveness and tendencies to perseverate, have also been documented in both Asperger's Disorder and autistic populations (e.g. Kenworthy, Black, Wallace, Ahluvalia, Wagner, & Sirian, 2005; Ozonoff, Pennington, & Rogers, 1991). It is important to note, however, that while research has found a link between poor executive functioning and those with autism and Asperger's Disorder, further research is needed to conclude whether these behaviours are characteristic of these populations. Furthermore, a direct link between these executive behaviours and the social and emotional deficits common in those with Asperger's Disorder has not been substantiated (Griffith, Pennington, Wehner, & Rogers, 1999).

Still other research has speculated that those with Asperger's Disorder attend more to local details than global information (i.e., to pieces rather than the whole of a situation). This inability to 'see the big picture' is termed weak central coherence (Baron-Cohen, 2000). Stories narrated by people with Asperger's Disorder are often described as being incoherent and lacking causal connections between story elements (Klin, 2000; Losh, & Capps, 2003). Or, in other terms, these stories focus on details rather than the whole. Frith

and Happe (1996) suggest that weak central coherence, in conjunction with theory of mind, may partially account for the development of social and emotional impairments.

The less common theory of empathy also provides insight into the functioning of people with pervasive developmental disorders. Gillberg (1992) suggests that many individuals with a diagnosis of autism or Asperger's Disorder share an inability to understand other people's internal worlds and consider their thoughts and feelings. Further, Gillberg (1992) states that theory of mind skills are necessary to develop empathy. It is important to note, however, that although theory of mind may be a prerequisite to empathy skills, the ability also requires several other skills such as the ability to decipher perceptual, situational, and verbal clues (Dyck, Ferguson, & Shochet, 2001; Wimmer, & Perner, 1983). Research is fairly limited in the area, but Dyck and colleagues (2001) suggest that people with Asperger's Disorder and autism perform differently than the non-disordered population on tests of empathy.

Although research has examined the above theories of social and emotional impairment in autism and Asperger's Disorder, there is a lack of research focusing on the field of emotional intelligence in relation to these disorders. Emotional intelligence is theorised to influence one's ability to succeed and cope with environmental demands and pressures (Bar-On, 1997). Varying levels of emotional intelligence, consequently, may impact domains of social and emotional functioning. It is especially important to consider this factor when making decisions regarding intervention and treatment programs for those with Asperger's Disorder as many of these individuals already face substantial challenges coping with life's demands.

Emotional Intelligence

Although the construct of emotional intelligence is thought of as new by many, its historical roots are embedded in theory from the past century. The construct of social intelligence, a precursor to emotional intelligence, dates back to the 1920's. Thorndike (1920) distinguished social intelligence from other forms of intelligence, defining it as the ability to understand and wisely interact with men and women (i.e., the ability to handle interpersonal situations). Unfortunately, difficulties distinguishing the construct from verbal intelligence arose and, 30 years later, social intelligence had yet to be fully defined and measured (Cronbach, 1960; Newsome, Day, & Catano, 2000).

Despite these setbacks, interest in social intelligence re-emerged in the early 1980's. Gardner's theory of multiple intelligences (1983), for instance, built upon Thorndike's work. In the 1990's, the construct of emotional intelligence was developed. Differing from social intelligence, emotional intelligence was both more focused, examining emotional problems embedded in personal and social issues, and broader, including reasoning about emotions in social relationships and internal emotions important to personal growth (Mayer, Caruso, & Salovey, 1999). This culmination of research led to defining emotional intelligence as an "ability to monitor one's own and other's feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions (Salovey & Mayer, 1989/1990, p. 189)." Since this conception, theorists have generated distinctive approaches to defining, and understanding, the construct.

Trait-Based Emotional Intelligence

Interest in emotional intelligence has greatly increased over the past 15 years, especially since Goleman (1995) proclaimed that successful life outcomes were influenced more by emotional than cognitive ability. One of the first scientific assessments of emotional intelligence to develop from this increase in interest was the BarOn Emotional Quotient Inventory (EQ-i; Bar-On, 1997; Newsome, Day, & Catano, 1999). In development since the 1980's, the EQ-i examined a range of behavioural dispositions and self-perceived abilities (Bar-On, 1997; Parker, Taylor, & Bagby, 1999). According to Bar-On's model (1997), assessing emotional intelligence was like measuring one's 'common sense' and ability to 'get along with the world.' He defined his concept of trait-based emotional intelligence (also known in various research as mixed-model emotional intelligence or emotional self-efficacy) as "an array of non-cognitive capabilities, competencies and skills that influence one's ability to succeed in coping with environmental demands and pressures" (Bar-On, 1997; p.14).

The EQ-i itself is a self-report questionnaire that measures one's potential for performance, or, in other words, one's potential to succeed rather than success itself. In Bar-On's model, emotional intelligence is comprised of five broad categories/quotients: 1) Intrapersonal, 2) Interpersonal, 3) Adaptability, 4) Stress Management, and 5) General Mood. These are described as follows.

First is the Intrapersonal Emotional Quotient (EQ), which provides an assessment of the inner self. This scale further divides into self-regard, emotional-self awareness, assertiveness, independence, and self-actualization. Second is the Interpersonal EQ, which

taps interpersonal skills and functioning. This scale is comprised of empathy, social responsibility, and interpersonal relationships. These first two categories are reminiscent of Gardner's theory of multiple intelligences (1983). Third is the Adaptability EQ which is thought to examine how successfully one will be able to cope with environmental demands by understanding and dealing with problematic situations. Reality testing, flexibility, and problem solving are included within this quotient. Fourth is the Stress Management EQ, which measures one's ability to withstand stress without losing control. This scale may be further divided into stress tolerance and impulse control. Lastly, the General Mood EQ measures one's ability to enjoy life as well as one's outlook on life. This composite includes optimism and happiness. The General Mood scale is now considered more of a facilitator of trait-based emotionally intelligent behaviour than an integral part of the construct itself; as such, revisions of the BarOn EQ-i are comprised of four, not five quotients (Bar-On, 2000).

As mentioned, different theorists have generated distinctive approaches to defining, understanding, and measuring the construct of emotional intelligence. The two major approaches are trait-based emotional intelligence, previously discussed, and performance-based emotional intelligence. According to Mayer, Salovey, and Caruso (2000), arguably the most prominent researchers in the field of performance-based emotional intelligence, emotional intelligence is the cognitive ability to perceive emotions, access and generate emotions so as to assist thought, understand emotions and emotional knowledge, and regulate emotions so as to promote emotional and intellectual growth. Differing from trait-based emotional intelligence, performance-based emotional intelligence is considered a cognitive ability and not a behavioural disposition.

The most popular measure of performance-based emotional intelligence is the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, et al., 2002), while the aforementioned EQ-i is the most prominent measure of trait-based emotional intelligence. These different approaches to emotional intelligence yield different validities (Brackett, & Mayer, 2003); Mayer, Caruso, and Salovey (2000) suggest that little overlap exists between the MSCEIT and the Bar-On EQ:i. Therefore, it is likely that the MSCEIT will yield different results in comparison to the EQ-i (Brackett, & Mayer, 2003; Conte, 2005; van der Zee, & Wabeke, 2004).

Criticisms of Trait-Based Emotional Intelligence

One criticism of Bar-On's approach focuses on its overlap with personality constructs. Past research has found that trait-based emotional intelligence is correlated with selected personality dimensions and, some argue, that personality traits (not emotional intelligence) are measured by the EQ-i (e.g. Brackett, & Mayer, 2003; van der Zee, & Wabeke, 2004). Bar-On has refuted this overlap by examining the divergent validity between the EQ:i-S and well-established measures of personality. He states that although there is some overlap between dimensions, the BarOn EQ:i-S assesses a set of constructs that are distinct from personality. Others theorise that the relationship between trait-based emotional intelligence and personality measures is amplified by the use of self-report as well as the use of similar construct traits (Gannon, & Ranzjin, 2004; Hedlund, & Sternberg 2000). Research has also found that emotional intelligence, as measured by the EQ:i, is related to other dimensions, such as job and life satisfaction, even when personality is controlled (Newsome, Day, & Catano, 2000).

Critics have also suggested that trait-based emotional intelligence may be a culture bound construct. Matsumoto (1993) states differences exist among ethnic groups in terms of emotion judgement, self-reported emotional expression, and emotional displays – all components of trait-based emotional intelligence. However recent research conducted by Parker and colleagues (2005) has found empirical support for the generalizability of the EQ-i among North American aboriginal children and adolescents as well as rural non-aboriginal children and adolescents. Bar-On (2000) also states than an examination of the North American sample used to norm the EQ-i revealed no significant differences between the various ethnic groups compared.

Incremental Validity of Trait-Based Emotional Intelligence

Research has found incremental validity for trait-based emotional intelligence in a number of areas. According to Bar-On (2005), emotional intelligence influences one's ability to succeed in life as well as one's emotional and mental health. Livingstone and Day (2005), similarly, report that scores on the EQ-i are related to high levels of both job and life satisfaction as well as affective regulation. Palmer and colleagues (2002), as well others (Bar-On, 1997), have found similar results.

Research also suggests a relationship between trait-based emotional intelligence and achievement. Parker and colleagues (2004a) suggested that academically successful first year university students scored higher than less successful students on several dimensions of trait-based emotional intelligence. As a result, they reported, students with high levels of trait-based emotional intelligence were better able to cope with the social and emotional demands of making the transition from high school to a post-secondary

environment. A similar relationship between the two constructs has also been found in research utilising younger student participants (Parker et al., 2004b).

While studies have suggested a relationship between trait-based emotional intelligence and achievement, the same cannot be said for academic intelligence. Rather, research suggests that cognitive intelligence and trait-based emotional intelligence are two separate constructs (e.g. van der Zee, & Wabeke, 2004). Correlations between the constructs are reported as low and, some suggest, this may be due to the fact that whereas cognitive intelligence measures maximum performance, trait-based emotional intelligence measures typical performance (van der Zee, & Wabeke, 2004).

Psychological Resilience

Psychological resilience can be defined as the dynamic process wherein individuals display positive adaptations (i.e., competencies) despite experiences of significant adversity or trauma (Luthar & Cicchetti, 2000; Masten & Coatsworth, 1998). In order to fully understand what psychological resilience 'is', however, one must further define the terms of 'adversity' and 'positive adaptations'

'Adversity' (or risk) refers to negative life circumstances associated with adjustment difficulties. Repeated exposure to violence, for instance, is considered 'high risk;' youth exposed to this condition often experience significantly higher levels of maladjustment when compared to those who do not (Luthar & Cicchetti, 2000; Lynch & Cicchetti, 1998). Meanwhile, a 'positive adaptation' refers to success in meeting developmental tasks like learning how to walk at the appropriate developmental age (Masten & Coatsworth, 1998). Typically, an outcome is considered psychologically

resilient when good mental health, functional capacity, and social competence is achieved (Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). The concept of psychological resilience may vary (much like the construct of emotional intelligence), however, depending on the definitions used by researchers (Masten & Coatsworth, 1998).

Factors of Psychological Resilience

A large body of research has been published examining the relationship between psychological resilience and negative life outcomes. From this, many psychosocial resilience factors have emerged. These include positive emotions and social support.

The Broaden and Build theory, proposed by Fredrickson (2001), examines the function of positive emotions (like love and joy). This theory suggests that positive emotions decrease levels of arousal in the autonomic system and broaden focus. This broadened focus enables a person to develop a reliance on creativity, exploration, and flexibility in thinking rather than resorting to escape or attack types of behaviour. The positive emotion of play, for instance, is thought to build social resources; according to the theory, social play also builds lasting social bonds and attachments (Frederickson, 2001). Positive emotions may also correct or undo the effects of negative emotions. Systematic desensitization, for example, utilises this style of thinking/emotional reactivity.

Frederickson (2001) also suggests that people may be able to improve their psychological well being, and their physical health, by cultivating experiences of positive emotions at opportune moments. Psychological resilience is thought to be one of the factors that foster this development of positive emotionality. Moreover, psychologically resilient

individuals are, theoretically, expert users of the undoing effects of positive emotions (Frederickson, 2001).

Optimism, another positive emotion, is also linked with psychological resilience (Block and Kremen, 1996). Life satisfaction, good health, and the capacity to tolerate stress are also associated with this construct (Goldman, Kraemer, & Salovey, 1996; Southwick, Vythilingam, & Charney, 2005).

Social support is one of the most widely studied psychosocial factors in relation to health and mental disorder. Research has consistently found that social isolation and low levels of social support are associated with higher levels of stress, mental disorder, and even mortality in illness. High levels of social support, on the contrary, are associated with positive outcomes despite the presence of stressors (Southwick, Vythilingam, & Charney, 2005). Well developed social networks, along with emotional support, may enhance mental and physical health by reducing the rate at which individuals engage in high-risk behaviours like smoking and excess alcohol consumption (Rozanski, Blumenthal, & Kaplan, 1999), foster effective coping strategies (Holahan, Holahan, Moos, & Moos, 1995), counteract feelings of loneliness (Bisschop, Kriegsman, Beekman, & Deeg, 2004), and increase feelings of self-efficacy (Hays, Steffens, Flint, Bosworth, & George, 2001). The relationship between good social support and positive mental and physical health outcomes has been observed in a variety of settings (Wade, Tavris, Saucier, & Elias, 2004).

Other psychosocial factors have been linked with psychological resilience. These include, among the aforementioned factors and others, personal attributes (e.g. explanatory

style, active coping), family qualities, spirituality, and altruism (Garmezy, 1985; Thorne, & Kohut, 2007).

Trait-Based Emotional Intelligence and Psychological Resilience

As the construct of trait-based emotional intelligence is relatively new, there appears to be little research examining the relationship between the construct and psychological resilience at this time. Some research has suggested, however, that emotional intelligence may foster psychological resilience. Edward and Warelow (2005) state:

“Emotional intelligence can be developed and dramatically increased through support and education and resilient behaviours can be learned and interwoven with contextual life experiences. In this context, fostering resilience and emotional intelligence has the potential to improve clinical outcomes for mental health consumers.”

Unfortunately the brevity of the article disallows for elaboration; the opinion remains, however, that emotional intelligence and resilience may be intertwined. Future research is necessary to substantiate this notion and, moreover, decipher which approach to emotional intelligence (trait or performance) would be most effective in fostering resilience.

Lopes, Salovey and Cote (2005) also suggest a relationship between emotion regulation, performance-based emotional intelligence, and psychological resilience. The authors contend that the ability to regulate emotions, which entails varying emotional experiences in order to obtain specific emotional states and adaptive outcomes, is crucial to the development of emotional intelligence. This ability is also linked with, according to the authors (2005), interpersonal sensitivity and social skills. Both of these factors can be

found within the construct of trait-based emotional intelligence. Likewise, those with Asperger's Disorder experience difficulties within these areas.

Trait-Based Emotional Intelligence, Psychological Resilience, and Asperger's Disorder

According to research, the effects of Asperger's Disorder are greatest in adolescence and young adulthood (Tantam, 2000). During this transitional period, individuals must complete school, find work, develop supportive social networks, become involved in the community, and contribute to the household (Collins, Davis & Vander Stoep, 2000). It is also during this transitional period that those with Asperger's Disorder are most at risk for mental health problems like depression and anxiety (Kim, Szatmari, Bryson, Streiner & Wilson, 2000; Stoddart, 1999) and are, similarly, at an elevated risk for developing a poorer quality of life (Gustein & Whitney, 2002).

To better understand those factors that promote psychological resilience (like trait-based emotional intelligence), subsequently, is to enable the development of interventions that decrease the risk for poor life outcomes and psychological illness in this group. Previous research suggests that trait-based emotional intelligence is correlated with more successful social relationships (Lopes, Salvoey, Cote, & Beers, 2005) - which is, in itself, correlated with resilience – and is, conversely, negatively correlated with psychological distress and depression (Dawda, & Hart, 2000).

The life outcomes of those with Asperger's Disorder affect not only those with the disorder, but the families of these individuals, the communities that surround them, and the systems that support them. A comprehensive understanding of the disorder, including the

social and emotional deficits exhibited by these individuals, as well as an understanding of the factors that suppress and promote psychological resilience, is thus necessary.

The Present Study

As research linking Asperger's Disorder, trait-based emotional intelligence, and resiliency is limited, the present study will address two areas: 1) the influence of trait-based emotional intelligence in those with Asperger's Disorder, with emphasis on the relationship between trait-based emotional intelligence and social and emotional competencies, and 2) the relationship between trait-based emotional intelligence, psychological resilience, life satisfaction, and psychological and adaptive behaviours. The BarOn Emotional-Quotient Interview: Short Version (BarOn EQ-i: S, 2005) will be utilized to measure trait-based emotional intelligence. Subsequently, this study will examine whether the BarOn EQ-i: S is predictive of psychological resilience (and resiliency factors) in those with Asperger's Disorder.

Research Questions

For this study, the following research questions will be examined:

1. Will youth with Asperger's Disorder score lower than normative groups on various measures of psychological resilience as measured by the BASC 2, the Resiliency Scale for Adolescents, and the Satisfaction with Life Scale?
2. Will youth with Asperger's Disorder have lower levels of trait-based emotional intelligence, as measured by the BarOn EQ-i-S, when compared with the normative sample?

3. Will there be significant relationships between scores on the BarOn EQ:i-S and measures of psychological resilience?

Method

Participants

A total of 23 youths, 17 male (74%) and 6 female (26%), participated in this study. Average participant age was 18 years, ranging from 16 to 21, with a *SD* of 1.4. All 23 participants were previously diagnosed with Asperger's Disorder by a registered psychologist or psychiatrist. Fourteen youths (from the original sample of 37) were excluded. These participants a) did not meet screening criteria, as described below (five participants had been diagnosed with autism, four presented with IQ scores below the specified range, and two obtained scores below the threshold specified in the KADI) or b) obtained an elevated score (≥ 12) on the BarOn EQ:i-S scale that measures random responding (three participants). Participants were recruited from research sites at the University of Calgary (in Calgary, Alberta) and the University of Manitoba (in Winnipeg, Manitoba). These individuals were drawn from schools, mental health settings, university clinics, and service organizations for those with autism spectrum disorders. Participants were recruited with the use of flyers, posters, and brochures distributed throughout various service centers and educational settings as well as advertisements in local newspapers, television, and radio.

1. Screening Measures

Participant information questionnaire. A researcher-created participant information questionnaire (Appendix A) was used to screen participants for significant

language delays as well as to ensure a previous diagnosis of Asperger's Disorder by a registered psychologist or psychiatrist. The parent (or parents) of the participant completed this questionnaire. In accordance with DSM-IV criteria (1994), only those participants who did not show abnormal language development before the age of three were invited to continue in this study. If the participant was reported as having language impairments prior to the age of three, or if the participant had not been diagnosed with Asperger's Disorder by a psychologist or psychiatrist, they were not invited to continue.

Krug Asperger's Disorder Index (KADI). The KADI (Krug, & Arick, 2003), a 32 item questionnaire, was used to identify individuals with Asperger's Disorder. The questionnaire is norm-referenced, specifically designed to assess this population, and is individually administered. This form was completed by the participant's parent.

The KADI yields a standard score which may be classified through six descriptive categories suggesting the likelihood of a diagnosis of Asperger's Disorder. These categories include: Extremely Low, Very Low, Low, Somewhat Likely, High, and Very High. A KADI index score of ≥ 60 (Very Low) was used as a cut off score. This score was thought to encompass the range of symptoms observed within the Asperger's Disorder population (i.e., included individuals with fewer characteristics of the disorder to those with numerous characteristics).

Content descriptive validity, criterion predictive validity, and construct identification validity analyses have been conducted by the authors of the KADI. Likewise, the manual provides evidence that the KADI is highly reliable, and test users may be confident in the results.

Wechsler Abbreviated Scale of Intelligence (WASI). The WASI (Wechsler, 1999) is an individually administered clinical instrument utilized to assess the intelligence of individuals 6 through 89 years of age. It is nationally standardized, psychometrically rigid, and linked to both the *Wechsler Intelligence Scale for Children – Third Edition* (WISC-III) and the *Wechsler Adult Intelligence Scale – Third Edition* (WAIS-III). The WASI provides Verbal, Performance, and Full IQ scores. For this study, however, only the Verbal Comprehension Index (VCI) was utilised. This scale provided a cut off score of ≥ 85 as a final screening criteria; this cut off was utilised to ensure participants possessed cognitive abilities consistent with a diagnosis of Asperger's Disorder (i.e., no associated cognitive disorders).

2. Outcome Measures

BarOn Emotional Quotient Inventory: Short Version (BarOn EQ-i: S). The BarOn EQ-i: S (Bar-On, 2005) is designed to assess the key aspects that define emotionally intelligent behaviour. The development of this instrument is based on the Bar-On model of emotional intelligence, as was its predecessor – the BarOn Emotional Quotient Inventory (EQ-i; Bar-On, 1997). It is intended for use with individuals 16 years of age and older and requires approximately 15 minutes to complete. Participants completing the questionnaire are required to rate themselves, using a five point likert scale. Response options range from “very seldom true of me” to “very often true of me”. Higher scores indicate higher emotionally intelligent behaviour, positive mood, and positive impression.

The BarOn EQ-i: S provides scores for each of four quotients: 1. Intrapersonal EQ (measuring self-awareness and self-expression), 2. Interpersonal EQ (measuring social

awareness and interpersonal relationships), 3. Stress Management EQ (measuring emotional management and regulation), and 4. Adaptability EQ (measuring change management). A full scale emotional quotient score (Total EQ), an Inconsistency Index to detect random responding, a Positive Impression Scale to detect individuals who falsely portray themselves, and a general mood scale (General Mood EQ) is also generated.

Standard scores for the BarOn EQ-i: S have a mean of 100 and a Standard Deviation of 15. The majority of respondents (68%) receive scores within 15 points of the mean (between 85 and 115). General guidelines are provided within the BarOn EQ-i-S technical manual that describe how an individual's scores compare to those of others in the normative sample by age range and gender. Standard scores between 80 and 89 are within the Low range – this signifies underdeveloped emotional and social capacity with room for improvement. Standard scores between 90 and 109 are within the Average range which signifies adequate emotional and social capacity. Standard scores between 110 and 119 are within the High range which suggests well developed emotional and social capacities. Standard scores can also fall within the Very High range (between 120 and 129), the Markedly High range (130 +), the Very Low range (between 70 and 79), and the Markedly Low range (under 70).

Internal consistency is satisfactory for the measure, ranging from 0.76 to 0.93 with the exclusion of the Positive Impression Scale. Test-retest reliabilities are also acceptable at the six month interval, ranging from 0.46 (Positive Impression) to 0.80 (Total EQ) for females and 0.57 (Interpersonal) to 0.80 (Intrapersonal) for males (Bar-On, 1997). The test manual reports similar patterns of inter-item correlations across gender and age groups; research has replicated these results (e.g. Newsome, Day, & Cantano, 2000).

The Satisfaction with Life Scale (SWLS). The SWLS is a short, five item instrument designed to measure global cognitive judgments of individual lives. As stated by the author, Dr. Ed Diener, the SWLS is not copyrighted, and can be used without charge and permission by all professionals. The scale takes approximately one minute to complete and is individually administered. Those completing the scale are asked to respond using a seven point likert scale: response options range from “strongly agree” to “strongly disagree.” This measure yields a raw score which may be classified through seven descriptive categories: Extremely Dissatisfied, Dissatisfied, Slightly Dissatisfied, Neutral, Slightly Satisfied, Satisfied, and Extremely Satisfied.

The SWLS has been shown to have favourable psychometric properties, including high temporal reliability (Deiner, Emmons, Larson, & Griffin, 1985). Scores on the SWLS correlate moderately to highly with other measures of subjective well being (Deiner, Emmons, Larson, & Griffin, 1985).

The Resiliency Scale for Adolescents (RSA). The RSA (Prince-Embury, 2006) is a self-report measure intended for use with individuals between 15 and 18 years of age. For the purpose of this study, modifications were made to two of the scale items by the test developers to include older aged participants (i.e., to extend the age range to 21). Individuals completing the scale are required to rate themselves using a five point likert rating system: response options range from “never” to “almost always.”

Three subscales are generated: 1) Sense of Mastery scale which measures self-perception of individual skills and competencies, 2) Sense of Relatedness scale which

measures self-perception of relationship quality, and 3) Emotional Reactivity scale which measures self-perceived emotional regulation ability.

Raw scores are converted to t scores with a mean of 50 and a standard deviation of 10. Index (Sense of Mastery, Sense of Relatedness, and Emotional Reactivity) t scores fall within the Average range between 45 and 54. Above Average scores range between 55 and 59, and High scores are above 60. Below Average scores are between 41 and 44, and Low scores are below 40. For Sense of Mastery and Sense of Relatedness scales, scores within the Average and Above Average range suggest the presence of relative strengths. Scores within the Above Average range, conversely, for the Emotional Reactivity scale suggest the presence of vulnerabilities. Investigations of the psychometric properties of the *Resiliency Scale for Adolescents* are in the initial stages.

The Behaviour Assessment System for Children, Second Edition (BASC 2). The BASC 2 (Reynolds, & Kamphaus, 2002) is used to measure behaviour and emotion in individuals 8 to 25 years of age. The instrument enables assessment from three vantage points – self, teacher and parent/caregiver – to ensure a balanced evaluation of the individual. The self report of personality (BASC 2: SRP) provides insight into an individual's thoughts and feelings; the teacher report scale (BASC 2: TRS) measures adaptive and problem behaviour in a school setting; and the parent report scale (BASC 2: PRS) measures adaptive and problem behaviours in both community and home settings.

Two types of items are included in the BASC 2: SRP (true/false and likert rating) while one item type is included in the BASC 2: TRS and BASC 2: PRS forms (likert

rating). Respondents are required to answer “never”, “sometimes”, “often” or “always” on the four point likert scale. All three forms of the BASC 2 were utilised in this study.

Six scales (4 from the BASC 2: SRP, 1 from the BASC 2: PRS, and 1 from the BASC 2: TRS) and 1 composite (from the BASC 2: SRP) were utilised in this study. The BASC 2: SRP Social Stress scale measures respondent’s feelings of stress and tension in personal relationships while the Sense of Inadequacy scale measures perceptions of being unsuccessful in school and goal obtainment. The Interpersonal Relations scale measures a respondent’s perceptions of achieving good social relationships and friendships with peers. The Self- Esteem scale measures feelings of self-esteem, self-respect, and self-acceptance while the Self-Reliance Scale examines confidence in one’s ability to solve problems. The Personal Adjustment Composite (comprised of Relations with Parents, Interpersonal Relations, Self-Esteem, and Self-Reliance) was also utilised. The Social Skills scale (obtained from the BASC 2: PRS and BASC 2: TRS), which assesses skills necessary for successfully interacting with peers and adults in a variety of settings, was utilised as well.

Raw scores are converted into t scores with a mean of 50 and a standard deviation of 10. High scores on BASC 2 clinical scales are indicative of negative or undesirable characteristics that may cause impaired functioning; scores greater than 70 suggest the appearance of Clinically Significant behaviours (i.e., behaviours occurring at a significantly higher rate than the normal population). Conversely, low scores on BASC 2 adaptive scales are indicative of impaired functioning; scores lower than 30 are Clinically Significant.

Psychometrically, the BASC 2 has demonstrated good properties. Measures of SRP internal consistency range from the mid to upper 0.80s to the mid 0.90s. Similarly, reliabilities for individual scales range from a low of 0.69 to 0.83. Test-retest values are also acceptable, ranging from 0.63 to 0.83.

Procedure

Participation in this study was voluntary. However, involvement was reimbursed via complementary parking/transit, a fifty dollar gift certificate, and entry into a prize draw. Participants under the age of 18 were required to bring a signed parental consent form, as well as to sign their own consent form; those over the age of 18 were required only to sign their own consent form (see Appendix B and C).

Individuals previously diagnosed with Asperger's Disorder were invited to participate. Those who wished to contribute were mailed the following materials: 1. a consent to participate form, 2. a participant information questionnaire, 3. the KADI, and 4. parent and teacher forms of the BASC 2.

Once participants completed and returned the mail-out package and met initial screening criteria, they were invited to schedule an appointment at the testing site. Participants were informed that there were two sections of the assessment session and that some would be asked to complete both sections while others would be asked to complete only one. Only those that met the final screening criteria of a VIQ of ≥ 85 continued with the remainder of the study. This cut-off score was based on DSM-IV (1994) criteria which state that no cognitive delays should be present in those with Asperger's Disorder.

Participants were seen on an individual basis. At the start of the assessment session, participants were read a script introducing the test procedures (Appendix D). Those who met screening criteria completed the self-report form of the BASC 2, the BarOn EQ:i-S, the RSA, and the SWLS. Test administration was randomized in order to avoid order effects. Research assistants remained with each participant during testing to answer any questions or concerns.

Results

Descriptive Analyses

A total of 23 youths, 17 (74%) male and 6 (26 %) female, participated in this study. One hundred percent of participants were diagnosed with Asperger's Disorder (either by a psychologist or a psychiatrist), and none reported significant language delays in childhood. An average participant Full Scale IQ of 112.87 (range from 97 to 138, $SD = 10.8$) and an average KADI score of 91.52 (High; range from 66 to 117, $SD = 12.9$) was obtained. Descriptive analyses were conducted to provide a summary of participant performance on the aforementioned outcome measures. These analyses, furthermore, examine the first research question which asked whether youth with Asperger's Disorder scored lower than normative groups on various measures of psychological resilience as measured by the BASC 2, the Resiliency Scale for Adolescents, and the Satisfaction with Life Scale. Descriptive analyses, in addition, partially examine the second research question which asked whether youth with the disorder have lower levels of trait-based emotional intelligence in comparison to the normative group. Descriptive statistics are outlined below.

BarOn EQ-i: S. See Tables 1, 2, and 3 for details. Scores on the Total EQ, the Intrapersonal EQ, the Interpersonal EQ, and the General Mood EQ were found to fall within the Low range, while scores on the Adaptability EQ and the Stress Management EQ were within the Average range. The Positive Impression Scale and the Inconsistency Index were also within the Average range.

SWLS. See Tables 1 and 2 for details. Participant scores on the SWLS ranged from 5 to 35 ($M = 23.5$, $SD = 7.3$). This result suggests that participants, on average, were Slightly Satisfied with life.

RSA. See Tables 1 and 2 for details. Participant scores on the Sense of Mastery and Emotional Reactivity scales were within the Average range. Scores on the Sense of Relatedness scale were within the Below Average range. These results suggest that while participants may feel competent, optimistic, and able to regulate their emotions, they may also feel uncomfortable in social situations and distrust others.

BASC 2. See Tables 1, 2, and 3 for details. Participant's self-ratings on the BASC-2: SRP Social Stress scale, Interpersonal Relations scale, Self-Esteem scale, and Self-Reliance scale were all within the Average range. Participant self-ratings on the BASC 2: PRS Social Skills scale was reported to be within the Average range as was performance on the Social Skills scale when rated by teachers. Self-ratings on the BASC 2: SRP Personal Adjustment Composite were also within the Average range.

Table 1

Mean Performance Scores of Participants with Asperger's Disorder

Scale	Number of Participants	Mean	Standard Deviation	Minimum Value	Maximum Value
Full Scale IQ	23	112.87	10.818	97	138
KADI	23	91.52	12.940	66	117
Sense of Mastery	23	45.30	6.609	35	57
Sense of Relatedness	23	43.78	9.525	23	68
Emotional Reactivity	23	53.13	12.118	13	79
Satisfaction with Life	23	23.48	7.329	5	35
Total EQ	23	85.09	14.381	59	114
Intrapersonal EQ	23	85.91	15.966	49	116
Interpersonal EQ	23	87.30	14.846	52	107
Stress Management EQ	23	90.78	19.136	50	122
Adaptability EQ	23	93.83	17.437	61	121
General Mood EQ	23	85.87	16.896	42	114
Positive Impression	23	110.1	11.6	89	134
Inconsistency Index	23	6.4	2.4	2	10

Table 1

Mean Performance Scores of Participants with Asperger's Disorder (cont.)

Scale	Number of Participants	Mean	Standard Deviation	Minimum Value	Maximum Value
Social Stress	23	54.39	12.120	38	92
Sense of Inadequacy	23	48.96	11.550	36	89
Personal Adjustment	23	47.78	8.602	30	66
Interpersonal Relations	23	44.35	9.679	13	60
Self-Esteem	23	48.96	9.251	15	60
Self- Reliance	23	51.43	10.277	24	71
Social Skills (Parent)	23	42.65	11.684	29	69
Social Skills (Teacher)	10	46.50	8.580	37	65

Table 2

Participant Score Summaries One

ID	K ^A	IQ ^B	SM _C	SR ^D	ER _E	SL ^F	T EQ _G	ER EQ ^H	RA EQ ^I	SM EQ ^J	A EQ ^K	GM EQ ^L
3	76	108	48	44	41	19	79	65	79	111	87	79
7	105	129	48	44	60	24	80	96	77	83	106	66
8	66	109	45	23	55	23	64	63	63	78	73	86
14	82	108	38	48	53	16	79	94	86	83	65	85
16	100	120	47	47	56	28	88	81	88	92	95	98
22	75	120	43	47	55	33	76	89	63	92	95	77
23	94	138	51	50	55	28	96	104	93	94	87	104
102	94	103	44	50	44	34	92	94	87	99	90	101
103	95	115	41	39	67	13	75	96	90	50	95	71
104	82	109	41	41	48	22	88	75	102	97	95	85
105	99	115	39	34	63	18	81	78	92	78	107	79

Table 2

Participant Score Summaries One (cont.)

ID	K	IQ	SM	SR	ER	SL	T EQ	ER EQ	RA EQ	SM EQ	A EQ	GM EQ
107	88	99	40	37	61	16	71	107	72	75	61	66
109	100	119	54	27	79	5	59	91	49	53	121	42
111	79	97	38	40	49	27	75	52	95	108	61	79
114	97	129	35	44	51	24	85	91	77	97	98	82
115	112	99	39	44	63	23	84	75	101	88	83	89
116	89	128	57	53	49	27	100	91	107	100	91	106
117	94	107	57	50	13	30	114	106	108	107	117	113
118	82	110	48	50	55	20	97	89	86	116	110	93
120	117	100	50	52	46	35	97	106	80	99	114	99
121	86	112	53	68	52	31	109	104	93	108	121	114
123	112	108	36	31	47	17	103	86	116	122	95	90

Table 2

Participant Scores Summary One (cont.)

ID	K	IQ	SM	SR	ER	SL	T EQ	ER EQ	RA EQ	SM EQ	A EQ	GM EQ
126	81	114	50	44	60	27	65	75	72	58	91	71

^A KADI Score, ^B Full Scale IQ, ^C Sense of Mastery Subscale Score, ^D Sense of Relatedness Subscale Score, ^E Emotional Reactivity Subscale Score, ^F Satisfaction with Life Score, ^G Total Emotional Quotient, ^H Interpersonal Emotional Quotient, ^I Intrapersonal Emotional Quotient, ^J Stress Management Emotional Quotient, ^K Adaptability Emotional Quotient, ^L General Mood Emotional Quotient

Table 3

Participant Scores Summary Two

ID	PIS ^A	II ^B	SS ^C	SI ^D	PAC ^E	IR ^F	SE ^G	SR ^H	SSP ^I	SST ^J
3	110	2	55	42	48	47	51	47	38	-
7	114	3	66	49	47	39	50	55	40	37
8	122	6	50	39	39	31	54	49	34	-
14	103	9	45	40	50	52	46	49	32	49
16	110	3	47	47	48	41	46	57	41	43
22	131	8	53	44	39	39	55	24	32	-
23	134	9	52	44	54	52	51	42	31	65
102	107	5	48	39	58	54	54	58	57	55
103	103	10	72	66	36	33	34	47	31	-
104	107	5	45	45	52	49	56	41	43	-
105	107	4	63	61	55	39	54	60	69	-
107	100	6	69	60	34	41	44	42	38	47

Table 3

Participant Scores Summary Two (cont.)

ID	PIS	II	SS	SI	PAC	IR	SE	SR	SSP	SST
109	117	8	92	89	30	13	15	58	67	-
111	103	9	46	47	43	47	51	42	34	-
114	89	10	44	44	46	44	57	54	29	-
115	97	8	61	50	46	49	51	49	36	41
116	114	6	42	36	66	54	60	71	52	-
117	129	8	48	44	55	49	43	63	59	-
118	103	7	46	48	50	49	49	51	46	49
120	110	4	53	54	49	47	51	66	34	-
121	124	7	38	40	61	60	51	64	38	41
123	103	6	57	44	44	47	47	48	52	38
126	96	3	59	54	49	44	56	46	48	-

Table 3

Participant Scores Summary Two (cont.)

^A Positive Impression Score, ^B Inconsistency Index, ^C Social Stress, ^D Sense of Inadequacy, ^E

Personal Adjustment Composite, ^F Interpersonal Relations, ^G Self-Esteem, ^H Self-Reliance, ^I Social

Skills (Rated by Parent), ^J Social Skills (Rated by Teacher), - No Score Available

Between Groups Comparison

Between group comparisons were made between the performance of the youth with Asperger's Disorder and the BarOn EQ:i-S normative sample. These analyses further examine the second research question, which asked whether youth with Asperger's Disorder have lower levels of trait-based emotional intelligence, as measured by the BarOn EQ:i-S, in comparison to the normative sample. The BarOn EQ:i-S normative sample consists of 3,174 adults (1543 males and 1631 females) and ranges in age from 16 to 93 years of age. The mean age for males is 35.52 years ($SD = 11.68$) and 34.41 for females ($SD = 12.14$). 79% of respondents from the normative sample identified themselves as Caucasian, 8.1% as Asian, 7.1% as Afro-American, 2.8% as Hispanic, 0.7% as Native American, and 2.3% as Other. The majority of respondents reported an education level at High School equivalency (27.6%) although some reported some college/university or graduation from college/university (23% and 23.3%, respectively). Data was collected from 38 major U.S. and Canadian sites.

Comparisons were made between this study's participants and those from the normative sample in the 16 to 29 years of age group (539 males and 670 females). Comparisons were also gender matched (e.g., study male participant to normative sample male participant). See Table 4 for means and standard deviations of the BarOn EQ:i-S normative sample within the 16 to 29 years age group. A Bonnferroni correction was implemented in order to avoid spurious positives (i.e., to avoid type one errors).

Table 4

Normative Means and Standard Deviations for the BarOn EQ:i-S for Ages 16 to 29 (by Gender Group)

	Male (N = 539)		Female (N = 670)	
	Mean	Standard Deviation	Mean	Standard Deviation
Total EQ	35.13	4.29	35.29	4.09
Intrapersonal EQ	38.11	6.48	37.56	6.39
Interpersonal EQ	40.38	5.72	43.10	4.92
Stress Management EQ	30.08	5.45	30.28	5.55
Adaptability EQ	27.43	4.04	26.91	4.39
General Mood EQ	39.67	5.60	38.59	6.13

Male participants with Asperger's Disorder scored significantly lower than males from the normative sample on the Total EQ ($d = 0.5$), the Intrapersonal EQ ($d = 0.4$), and the Interpersonal EQ ($d = 0.4$). Male participants with Asperger's Disorder also scored lower than males from the normative sample on the Adaptability EQ, the Stress Management EQ, and the General Mood EQ. However, this was not at a statistically significant rate. Male participants with Asperger's Disorder scored significantly higher, however, in comparison to the male normative sample on the Positive Impression Scale ($d = 0.3$). Effect sizes (Cohen's delta, d) for these results indicate a moderate practical, 'real world' difference. See Table 5 for further details.

Female participants with Asperger's Disorder scored lower than females from the normative sample on the Total EQ, the Intrapersonal EQ, the Interpersonal EQ, the Adaptability, and the General Mood EQ, but not at a statistically significant rate. Female participants with Asperger's Disorder also scored higher than females from the normative sample on the Positive Impression Scale. However, this was also not at a statistically significant rate. See Table 6 for details.

These results suggest that this study's male participants experience difficulty coping with environmental demands and pressures, self-awareness, and social awareness in comparison to males from the BarOn EQ:i-S normative group.

Table 5

Male between Groups Comparisons for Age Group 16 to 29

	Male			
	T	Df	Sig.	Effect Size
Total EQ	-4.877	16	.000*	-.5
Intrapersonal EQ	-3.793	16	.002*	-.4
Interpersonal EQ	-3.607	16	.002*	-.4
Stress Management EQ	-1.829	16	.986	-
Adaptability EQ	-1.769	16	.096	-
General Mood EQ	-4.106	16	0.01	-
Positive Impression	3.308	16	.004*	.3

* Significant at $p = 0.05$

Table 6

Female between Group Comparisons for Age Group 16 to 29

	Female			
	T	Df	Sig.	Effect Size
Total EQ	-1.636	5	.163	-
Intrapersonal EQ	-1.778	5	.136	-
Interpersonal EQ	-1.820	5	.128	-
Stress Management EQ	1.665	5	.157	-
Adaptability EQ	-.346	5	.744	-
General Mood EQ	-1.104	5	.320	-
Positive Impression	2.521	5	.53	-

Correlations

In the following analyses, the third research question is investigated. This question examines whether there is a significant relationship between scores on the BarOn EQ:i-S and measures of psychological resilience. Several two-tailed Pearson's correlations were conducted to examine the relationship between the Total EQ, the four emotional quotients, the General Mood EQ and satisfaction with life, psychological resilience, and various psychological and adaptive behaviours. As this study is exploratory in nature and aimed to discover whether any relationships exist between its variables – either positive or negative – two-tailed correlations were conducted. One-tailed correlations which assume direction (i.e., either a positive or negative correlation) in advance were, thus, inappropriate.

Trait-Based Emotional intelligence and the SWLS. See Table 7 for details.

Performance on the General Mood EQ was positively related to self-reports of life satisfaction .

Trait-Based Emotional Intelligence and the RSA. See Table 7 for details.

Performance on several BarOn EQ:i-S quotients was significantly related to the self-report measure of psychological resilience. Sense of Relatedness was positively related to the Total EQ, and the General Mood EQ. Emotional Reactivity was negatively related to the Total EQ, the Stress Management EQ, and the General Mood EQ. Sense of Mastery was positively related with the Adaptability EQ.

Trait-Based Emotional Intelligence and the BASC 2. Several significant correlations were also found between the BarOn EQ:i-S quotients and the psychological and adaptive behaviours measured by the BASC 2.

Overall, respondents' reported that higher levels of overall trait-based emotional intelligence, emotional self-awareness, independence, self-actualization, and ability to enjoy life were related to personal adjustment and, more specifically, to higher perceived qualities of social relationships and friendships. Higher perceived qualities of the latter were also related to ability to withstand stress without losing control. Results also indicate that higher levels of overall trait-based emotional intelligence, stress management, and positive life outlook are negatively related to feelings of stress and tension in social settings. Feelings of being unsuccessful in terms of goal attainment were reported as related to poorer life outlook and difficulties managing stress. See Tables 7 for further details.

Table 7

Correlations Matrix between Trait-Based Emotional Intelligence, Satisfaction with Life, Psychological Resilience, and Selected Psychological and Adaptive Behaviours

	SWL ^A	SM ^B	SR ^C	ER ^D	SS ^E	SI ^F	PAC ^G	IR ^H
T EQ ¹	.490*	.291	.660**	-.668**	-.591**	-.515*	.716**	.722**
	.018	.177	.001	.000	.003	.012	.000	.000
RA EQ ²	.209	-.085	.323	-.510*	-.473*	-.460*	.603**	.676**
	.340	.701	.132	.013	.023	.027	.002	.000
ER EQ ³	.117	.338	.454*	-.099	.087	.113	.156	.151
	.594	.115	.029	.652	.692	.607	.478	.492
SM EQ ⁴	.458*	.002	.428*	-.678**	-.701**	-.686**	.507*	.686**
	.028	.993	.042	.000	.000	.000	.014	.000
A EQ ⁵	.093	.529**	.282	-.070	.134	.283	.233	-.120
	.674	.010	.192	.751	.542	.191	.285	.585
GM EQ ⁶	.687**	.287	.671**	-.676**	-.799**	-.727**	.782**	.794**
	.000	.184	.000	.000	.000	.000	.000	.000

¹ Total EQ, ² Intrapersonal EQ, ³ Interpersonal EQ, ⁴ Stress Management EQ, ⁵ Adaptability EQ, ⁶ General Mood EQ, ^A Satisfaction with Life Scale, ^B Sense of Mastery subscale, ^C Sense of Relatedness Subscale, ^D Emotional Reactivity Subscale, ^E Social Stress, ^F Sense of Inadequacy, ^G Personal Adjustment, ^H Interpersonal Relations

* Correlation is significant at 0.05, ** Correlation is significant at 0.01

Table 7

Correlations Matrix between Trait-Based Emotional Intelligence, Satisfaction with Life, Psychological Resilience, and Selected Psychological and Adaptive Behaviours (cont)

	SE ^I	SR ^J	SSP ^K	SST ^L
T EQ ¹	.294	.450*	.105	.031
	.174	.031	.634	.931
RA EQ ²	.328	.246	.107	-.176
	.126	.258	.628	.627
ER EQ ³	-.238	.310	.033	.400
	.274	.150	.881	.251
SM EQ ⁴	.472*	.107	-.068	-.093
	.023	.628	.758	.797
A EQ ⁵	-.254	.505*	.456*	-.294
	.241	.014	.029	.409
GM EQ ⁶	.511*	.387	-.080	.343
	.013	.068	.715	.331

¹ Total EQ, ² Intrapersonal EQ, ³ Interpersonal EQ, ⁴ Stress Management EQ, ⁵ Adaptability EQ, ⁶ General Mood EQ, ^I Self-Esteem, ^J Self-Reliance, ^K Social Skills (Parent), ^L Social Skills (Teacher)

* Correlation is significant at 0.05, ** Correlation is significant at 0.01

RSA and SWLS. Satisfaction with life was positively related with Sense of Relatedness and negatively related with Emotional Reactivity. As such, respondent's reported that higher levels of social support, comfort and trust were related to higher levels of life satisfaction. Conversely, higher life satisfaction was related with lower levels of emotionally reactive behaviour. See Table 8 for details.

SWLS and the BASC 2. Significant correlations were found between overall satisfaction with life and the psychological and adaptive behaviours measured by the BASC 2. See Tables 8 for details. These results suggest that higher levels of life satisfaction were related with lower levels of stress in personal relationships and feelings of being unsuccessful. Conversely, higher levels of self-esteem were related with higher levels of life satisfaction.

RSA and the BASC 2. Significant correlations were also found between self-report on the three psychological resilience scales and the BASC 2. See Table 9 for details.

Overall, respondent's higher levels of social comfort, support, and trust were related to decreased feelings of stress and tension in social settings. Also, respondent's who felt personally adjusted and satisfied with relationships and friendships reported having more social support, comfort, and trust with others. Respondent's reports of satisfactory relationships were also related to lower levels of emotional regulation and sensitivity. Similarly, reports suggested that lower levels of emotional reactivity were linked to less stress in social situations and fewer feelings of being unsuccessful.

Table 8

Correlations Matrix between Satisfaction with Life, Psychological Resilience, and Selected Psychological and Adaptive Behaviours

	SM ^A	SR ^B	ER ^C	SS ^D	SI ^E	PAC ^F	IR ^G
S	.259	.640**	-.514**	-.668**	-.637**	.560**	.599**
W							
L ¹	.233	.001	.008	.000	.001	.005	.003

¹ Satisfaction with Life scale, ^A Sense of Mastery, ^B Sense of Relatedness, ^C Emotional Reactivity, ^D Social Stress, ^E Sense of Inadequacy, ^F Personal Adjustment, ^G Interpersonal Relations

** Correlation is significant at 0.01

Table 8

Correlations Matrix between Satisfaction with Life, Psychological Resilience, and Selected Psychological and Adaptive Behaviours (cont.)

	SE ^H	SR ^I	SSP ^J	SST ^K
S	.662**	.106	-.227	.276
W				
L ^I	.001	.629	.297	.440

^I Satisfaction with Life scale, ^H Self-Esteem, ^I Self-Reliance, ^J Social Skills (Parent), ^K Social Skills (Teacher)

** Correlation is significant at 0.01

Table 9

Correlations Matrix between Psychological Resilience and Selected Psychological and Adaptive Behaviours

	SS ^A	SI ^B	PAC ^C	IR ^D	SE ^E	SR ^F	SSP ^G	SST ^H
S M 1	-.002	.042	.359	.020	-.169	.493*	.314	.265
	.994	.847	.092	.929	.442	.017	.145	.460
S R 2	-.597**	-.472*	.696**	.757**	.359	.290	-.218	.203
	.003	.023	.000	.000	.093	.180	.317	.574
E R 3	.625**	.634**	-.502*	-.580**	-.376	-.196	-.034	-.229
	.001	.001	.015	.004	.077	.370	.876	.524

¹ Sense of Mastery Subscale, ² Sense of Relatedness Subscale, ³ Emotional Reactivity Subscale, ^A Social Stress, ^B Sense of Inadequacy, ^C Personal Adjustment, ^D Interpersonal Relations, ^E Self-Esteem, ^F Self-Reliance, ^G Social Skills (Parent), ^H Social Skills (Teacher)

* Correlation is significant at 0.05, ** Correlation is significant at 0.01

Discussion

The primary objective of this study was to examine trait-based emotional intelligence in those with Asperger's Disorder. The BarOn Emotional Quotient Inventory: Short Version (BarOn EQ:i-S), one of the most commonly used measures of this form of emotional intelligence, was utilised to assess levels of trait-based emotional intelligence (Total EQ), emotional quotients (Intrapersonal, Interpersonal, Stress Management, Adaptability) and mood (General Mood EQ) within this population.

Descriptive results indicate that, on average, respondent's reported themselves functioning within the Low range on overall trait-based emotional intelligence, intrapersonal and interpersonal trait-based emotional intelligence, and mood. This suggests that participants, on average, saw themselves as possessing underdeveloped social and emotional capacities. Much research states that individuals with Asperger's Disorder encounter substantial difficulties within the realm of social and emotional competencies (such as disinterest in others, an inability to comprehend social cues, and difficulties sensing other's feelings and recognizing emotional states). The findings in this study are consistent with these notions (Baron-Cohen, Leslie, & Frith, 1985; Szatnari, 1991; Tantam, 1991). Moreover, it has been reported that individuals with Asperger's Disorder often desire to engage in social contexts but lack the skills in which to do so (Klin, & Volkmar, 2003). As a result, these individuals experience feelings of rejection, disappointment, and isolation (Gustein, & Whitney, 2002). Respondents in this study reported similar feelings, suggesting they possessed a decreased ability to enjoy life and possessed a less positive outlook on life than their typically developing peers.

Respondent's also scored in the Below Average range on the Sense of Relatedness scale. This result suggests that participants with Asperger's Disorder perceive they possess a lower quality of social relationships than average or are dissatisfied with the quality of these relationships. Research states that people with Asperger's Disorder are often socially isolated and, as a result, lack many of the social supports necessary to foster positive life outcomes (Gustein, & Whitney, 2002; Southwick, Vythilingam, & Charney, 2005). Consequently, it may be expected that many of these individuals feel that the quality of their social relationships is impaired.

Other research suggest, however, that children with Asperger's Disorder rate themselves higher – not lower – on scales of social skills in comparison to their parents, demonstrating little insight into their social difficulties (Russell, & Sofronoff, 2007). In such a case, individuals with the disorder may be over-scoring on self-report scales. Respondents in this study rated themselves as Average on all psychological and adaptive domains within the BASC 2. With low scores on quotients of trait-based emotional intelligence, life satisfaction, and feelings of relatedness, these results are somewhat surprising. The subject of self-report will be examined further in the discussion.

On average, respondents also reported Average skills within both the Stress Management EQ and the Adaptability EQ. These results suggest that participants believe they are relatively able to cope with environmental demands and deal with problematic situations as well as manage stressful situations without losing control. These results may not be surprising when one considers the unique cognitive style that individuals with Asperger's Disorder demonstrate. For instance, Baron-Cohen (2000) reports that many children with Asperger's Disorder, and high functioning autism, have an advanced

knowledge of how things work. Moreover, research suggests that these individuals are more skilled at attending to fine detail and tend to interpret things literally (Baron-Cohen, 2000; Landa, & Goldberg, 2005). With such a cognitive style, it is possible that people with Asperger's Disorder are better able to manage stressful situations, and likewise adapt, by focusing on problems not from an emotional or personal point of view (like many typically developing people do) but rather from a more detached, pieced view. As such, problems may not feel emotionally draining or overwhelming but rather solvable when approached in a systematic, concrete, step-by-step manner. The question remains, however: do people with Asperger's Disorder perceive problems as less serious (i.e., marginalizing issues by attending to small problem pieces and not the whole) or are these individuals simply less impacted by problems due to their supposed emotional detachment? There is no answer to this question at this time.

In conjunction with cognitive style, one must consider the components of the emotional quotients. Bar-On (2005) states that those who score well on the Adaptability EQ, for instance, are well suited to technical support, engineering, and computer related careers. Interestingly, Baron-Cohen (2000) revealed that many fathers and grandfathers of children with Asperger's Disorder or high functioning autism were more than twice as likely to work as an engineer in comparison to control groups. It is possible that this EQ profile (lower Total EQ, Intrapersonal, Interpersonal and General Mood EQs with average Adaptability and Stress Management EQs) is typical of the Asperger's Disorder population. Expectations to the contrary (i.e., lower scores on all EQs) may be incorrect.

Between group comparison were also made between the Total EQ, the EQ:i-S quotients, the General Mood EQ, and the BarOn EQ:i-S normative sample. These

comparisons were made between the study's participants and those from the normative sample of the BarOn in the 16 to 29 years of age group. Comparisons were also gender matched (e.g. male study participants were compared to male participants from the normative sample) as gender and age impact BarOn EQ:i-S results (Bar-On, 2005). Standard scores, which were utilised for descriptive and correlational analyses, are automatically adjusted for such differences.

Overall, comparisons suggest that males clinically diagnosed with Asperger's Disorder perform lower than males in the normative group in terms of the Total EQ, Intrapersonal EQ, and Interpersonal EQ. Similar results were obtained through descriptive analyses. Male respondent's also scored higher than the normative sample on the Positive Impression Scale, which suggests a lack of personal self-awareness or elevated self-esteem. Unfortunately, there has been very little research examining the relationship between self-awareness/self-concept and those with autism – and none with Asperger's Disorder to the author's knowledge – that has not utilized a psychoanalytic approach. Empirical research has focused upon the specific limitations in individual ability to develop conceptual mental states (e.g. Baron-Cohen, Leslie & Frith, 1985; Hobson & Lee, 1989) rather than on the development of self-concept itself. As such, conclusions cannot be drawn as to whether those with Asperger's Disorder (or high functioning autism) possess elevated self-esteem levels at this time. However, it is possible that the cognitive style used by those with the disorder contributes to this lack of self-awareness or, possibly, inflated self-esteem.

Comparisons between females in this study and females from the normative BarOn EQ:i-S sample obtained different results. While females qualitatively scored lower than the normative sample on most emotional quotients, it was not at a statistically significant rate.

With such results, one must question the effect of gender in regards to trait-based emotional intelligence. In the BarOn EQ:i technical manual, Bar-On (1997) states that minimal gender effects are present when measuring overall levels of trait-based emotional intelligence. However, he notes, that research indicates that the typically developing male is more adaptable and is better able to manage stress than his female counterpart. Likewise, males tend to be better problem solvers than females. Females, on the other hand, tend to act in a more social manner than males. Research conducted by Ehlers and Gillberg (1993) found similar results: females show more social skill when compared to males even in cases when deficits similar to those exhibited with Asperger's Disorder are present. This view that females are more social and emotional than males is not a new one. In fact, Asperger (1944) conceptualized the "autistic psychopath" as an example of extreme male intelligence lacking female sensitivities. The very fact that Asperger's Disorder, with primary symptoms of social and emotional impairment, is more often diagnosed in males than in females is, thus, not entirely unexpected (Ehlers, & Gillberg, 1993).

An examination of the obtained results suggest that, perhaps, males with Asperger's Disorder exhibit more classic "autistic psychopath" behaviours while at the same time display relative strengths in stress management and adaptability. These inherent characteristics, in combination with the atypical cognitive styles associated with Asperger's Disorder, may impact the realm of trait-based emotional intelligence and, by extension, measures of trait-based emotional intelligence. Females with Asperger's Disorder may exhibit similar characteristics as males but, perhaps, to a less extreme manner. As such, it may be that measures of trait-based emotional intelligence, like the BarOn EQ:i-S, are not sensitive enough to detect these differences. However, it is important to note that the small

sample size of female participants with Asperger's Disorder may have influenced the obtained results. Further research into gender and its relation to the disorder and trait-based emotional intelligence is necessary before conclusions can be made.

The secondary objective of this study was to examine the relationship between trait-based emotional intelligence, psychological resilience, satisfaction with life, and psychological/adaptive behaviours (i.e., Social Stress, Sense of Inadequacy, Interpersonal Relations, Self-Esteem, Self-Reliance, Social Skills –as rated by parents and teachers – and Personal Adjustment). It was with optimism that this study aimed to examine whether trait-based emotional intelligence could serve as a predictive, and mediating, factor of resiliency within the Asperger's Disorder population.

Self-report of the General Mood Emotional Quotient was positively related to satisfaction with life. This result suggests that high levels of optimism, self-motivation, and ability to enjoy life are related with feeling, overall, satisfied with life. A similar result has been found in previous research (e.g. Livingstone, & Day, 2005). As respondents, however, reported lower levels of the General Mood EQ and only slight satisfaction with life, it appears as though the individuals in this study have not acquired (or developed) the skills necessary to obtain the aforementioned outcomes. Optimism, defined by Bar-On as “maintaining a positive outlook and looking at the brighter side of life” (Bar-On, 2005, p.32), has been linked with psychological resilience (Block and Kremen, 1996), as well as life satisfaction (Goldman, Kraemer, & Salovey, 1996). It is expected, thus, that lower levels of optimism (and happiness) as measured by the General Mood Emotional Quotient, will coincide with lower feelings of life satisfaction.

Performance on several BarOn EQ:i-S quotients was related to the self-report measure of psychological resilience. Sense of Mastery was positively related to the Adaptability EQ. Thus, participants who felt self-confident and capable also felt able to manage change and effectively problem solve. Benetti and Kambouropoulos (2006) have found similar results in typically developing populations. Moreover, research reports that self-esteem (which is comprised of factors like self-confidence and self-efficacy) is related not only to psychological resilience but also to successful environmental adaptation (Benetti, & Kambouropoulos, 2006).

Emotional Reactivity was negatively related to the Total EQ, the Stress Management EQ, and the General Mood EQ. These results suggest that participants who felt unable to control/regulate their emotional states experienced lower levels of overall trait-based emotional intelligence, felt unable to manage emotions and tolerate stress, and felt less optimistic and self-motivated. One may relate these results to Frederickson's (2001) Broaden and Build theory. As an individual becomes capable of increasing focus in thinking (i.e., to broaden), they become more flexible thinkers (i.e., to build). As such, the individual may become less emotionally reactive (or able to think more positively and to control his/her emotional states) and better able to manage stress and become happier. This increased reliance on positive emotions, and emotional control, has been linked with higher levels of trait-based emotional intelligence (Bar-On, 2005).

Sense of Relatedness was positively related to the Total EQ and the General Mood EQ. These results suggest that feelings of being socially connected are related to higher levels of overall trait-based emotional intelligence and feelings of happiness. Much research has found that higher levels of social support lead to higher levels of mental and

psychological health (Southwick, Vythilingam, & Charney, 2005; Wade, Tavis, Saucier, & Elias, 2004). Good mental and psychological health is also related to higher levels of trait-based emotional intelligence (Bar-On, 2005).

The relationship between trait-based emotional intelligence and the psychological and adaptive behaviours measured by the BASC 2 were also assessed. Total EQ was positively related to personal adjustment and interpersonal relations. Conversely, Total EQ was negatively related to social stress. These results suggest that participant's ability to successfully cope with environmental demands and pressures is linked with the perception of achieving good social relationships/friendships and personal adjustment (i.e., modifying behaviours to 'fit in' with the environment). Higher feelings of stress/tension in personal relationships, on the other hand, were reported as negatively related to overall trait-based emotional intelligence. These results underscore the importance of social and emotional functioning in typical development. Several studies have suggested that social support - which provides affection, resources, and attachments - can lead to lower levels of stress, longer life spans, and increased health (Southwick, Vythilingam, & Charney, 2005; Wade, Tavis, Saucier, & Elias, 2004). Consequently, those without these supports, like many individuals with Asperger's Disorder, are vulnerable to negative health, adaptive, and psychological issues.

The Intrapersonal EQ and the General Mood EQ was positively related with personal adjustment and interpersonal relations. The Stress Management EQ was also positively related with interpersonal relations. In simpler terms, these results suggest that being aware of ourselves, understanding our strengths and weaknesses, and being able to express ourselves (i.e., self-awareness) along with one's feelings of optimism and

happiness, are related to personal adjustment and perceptions of social connectedness. The ability to tolerate stress and control impulses is likewise related to one's feelings of social connectedness. Findings also revealed that the Stress Management EQ, along with the General Mood EQ, is negatively related with social stress and sense of inadequacy. These results suggest that high levels of stress tolerance and impulse control, along with high mood, is linked with low levels of feelings of stress/tension in personal relations and perceptions of being unsuccessful in goal attainment. Stress management, although not measured by the BarOn EQ:i, has previously been linked with social support and positive social relationships, as has mood (Wade, Tavis, Saucier, & Elias, 2004).

Lastly, correlations were conducted between the SWLS, the RSA and the BASC 2. Life satisfaction was positively related with Sense of Relatedness (i.e., feelings of being more socially connected/having quality social relationships were linked to feelings of being more satisfied with life) and negatively related with Emotional Reactivity. The latter implies that higher feelings of life satisfaction are linked with lower levels of emotional sensitivity. So, as one feels more satisfied with life, one may be less like to react (or over react) emotionally.

Satisfaction with life was negatively related with social stress and sense of inadequacy. A positive relationship was also found between life satisfaction and self-esteem. Thus, data indicate increased levels of life satisfaction are related with lower levels of perceived stress in personal relationships and feelings of being unsuccessful.

Sense of Relatedness was positively related to personal adjustment and interpersonal relations and negatively related to social stress. Again, even with inherent

emotional and social deficits, the participants in this study suggest that social support and connectedness play an important role in how one manages stress, adjusts, and interacts with others. Likewise, respondents suggested that higher perceptions of good social relationships were related to lower levels of emotional reactivity and, conversely, the latter was related to lower levels of stress in social situations and perceived feelings of being unsuccessful. Research has found similar results in typically developing populations (e.g. Hays, Steffens, Flint, Bosworth, & George, 2001; Holahan, Holahan, Moos, & Moos, 1995).

Self-Report

One important matter to consider before drawing robust conclusions is the issue of self-report. When considering the inherent difficulties faced by the Asperger's Disorder population, described as an impairment of social and emotional functioning and insight (Szatnari, 1991), one may wonder whether participants' self-perceptions of social and emotional abilities are accurate. Research has found, for instance, that children with Asperger's Disorder and high functioning autism over-score themselves (i.e., rate themselves higher) when compared to ratings by teachers and parents (Russell, & Sofronoff, 2007). Baron-Cohen and Wheelwright (2004) raise a similar question: do the inherent 'mind reading' difficulties associated with Asperger's Disorder and high functioning autism impair ability to judge social and communicative abilities? Brackett and Mayer (2003) state that, in intelligence research, performance scales are valid as they are theoretically based on the capacity to solve mental tasks. Self-report scales of intelligence, like the BarOn EQ:i-S on the other hand, are based on endorsements/perceptions of

statements about the self. Brackett and Mayer (2003) state, thus, that if self-concept is accurate, then self-report data is also accurate.

Different measures of emotional intelligence will yield different validities of the same person (Brackett, & Mayer, 2003; Conte, 2005; van der Zee, & Wabeke, 2004), especially when different approaches are utilised (e.g. trait vs. performance emotional intelligence). So, the question remains whether self-report is the best, and most accurate, means of measuring performance within the Asperger's population. It is difficult to make a conclusion. One may consider that if participants were impaired in terms of self-perception, they would score themselves higher than their true abilities. However, participants scored lower – not higher – on several emotional quotient scales and only within the Average range on most outcome scales. If participants' self-perceptions were impaired the question remains: why did they not score higher? No outcome measure produced scores anywhere in the Above Average range. In fact, several scores were barely within the Average range.

Research on Asperger's Disorder suggests that individuals often desire social relationships and, in fact, attempt to engage in social events (Tantam, 2000). However, these same people are often unsuccessful and, as a result, are confused by their rejection (Gustein, & Whitney, 2002; Tantam, 2000). Perhaps, individuals with Asperger's Disorder possess the necessary social and emotional skills but are unable to act upon them. Or perhaps the behaviours measured by the BASC 2 and the RSA are experienced more often in day-to-day life and, as a result, have been practiced and developed to higher levels of functioning. Trait-based emotional intelligence itself, suggests Bar-On (2005), can fluctuate over time and with training. Research suggests the same for resilience (Rutter,

1990). Perhaps certain emotional quotients are more easily acquired and developed than others and, consequently, respondents may have been able to build up skill in these areas.

Overlap between Constructs

One concern with the use of trait-based emotional intelligence lies in its overlap with other constructs. Newsome, Day, and Catano (2000) suggest that trait-based emotional intelligence may measure affect or personality rather than the construct itself. In fact, several studies have found an overlap between trait-based emotional intelligence and the Big Five, a commonly used personality measure (e.g. Brackett, & Mayer, 2003; van der Zee, & Wabeke, 2004). Other research suggests that caution is necessary when examining the relationship between trait-based emotional intelligence and life satisfaction, as personality is correlated with both constructs (i.e., life satisfaction and trait-based emotional intelligence) (Palmer, Donaldson, & Stough, 2002). However, research has found that emotional intelligence, as measured by the EQ:i, is related to both job and life satisfaction even when personality is controlled (Newsome, Day, & Catano, 2000).

As trait-based emotional intelligence is comprised of various factors like emotion appraisal, emotion regulation, and adaptability, it is expected to relate to constructs like satisfaction with life, depression, and coping styles (Petrides, & Furnham, 2001). However, if such was the case for all emotional quotients, one would expect to see much more overlap than this study produced. For instance, respondent's performance on the Interpersonal EQ was not predictive of performance on the BASC 2 Interpersonal Relations scale. Or, in simpler terms, performance on the trait-based emotional intelligence scale

which assesses perceptions of social awareness and interpersonal relationships was not predictive of performance on the BASC 2 scale measuring perceptions of interpersonal relationships. If the two constructs were identical, one would assume that one would be predictive of performance on the other, especially when both are self-report. The similar semantic content found between the BarOn EQ:i-S and the outcome measures may explain some of this overlap.

Limitations

One major limitation in regards to this study's generalizability is the small sample size. The power of statistical analyses increases with sample size - larger samples provide more stable estimates of population parameters and make it easier to statistically detect small differences in population means (Bordens, & Abbott, 1978). It is possible that, due to the small sample size, relationships went undiscovered between the BarOn EQ:i-S and the outcome measures. Fortunately, the relationships that were found were powerful. Effect size was calculated for all statistically significant relationships, and all were found within the moderate to large range. This indicates that observable, real world links can be found between these variables. For instance, the Total EQ was positively related to Sense of Relatedness ($r = 0.66$). As such, as one feels more socially and emotionally connected to others, he/she should behave in a more observably emotionally intelligent manner. Furthermore, one should demonstrate these trait-based emotional intelligence skills in the 'real world' as these feelings of connectedness increase.

Another limitation of this study lies within the unequal distribution of male and female participants. One could argue, however, that this distribution is most representative

of the Asperger's Disorder population, as males are more often diagnosed with the disorder than females (Ehlers, & Gillberg, 1993). Future research into the realm of trait-based emotional intelligence in this population may wish to examine the relationship between gender and these outcome measures.

Finally, participants were required to refer themselves to participate in this study. Although advertisements were placed in many areas and through many forms, it was up to each individual to involve themselves in this research. As such, it is likely that respondents possessed higher levels of self-motivation and self-awareness than others within the Asperger's Disorder population. This is important to remember when generalizing; not all people with the disorder possess such skills and, thus, not all people will perform in the same manner as the study's participants did. Furthermore, there are many within the Asperger's Disorder community that remain undiagnosed; the characteristics of this group must also be considered when drawing conclusions (Tantam, 2000). Future examination of the construct of trait-based emotional intelligence in this population would benefit from a more diverse sample (in terms of requirement) as well as a gender-equal distribution.

Implications and Conclusions

The emotionally intelligent individual, according to Bar-On (2005), behaves, acts, and manages his/her life in an emotionally intelligent manner. People with high trait-based emotional intelligence tend to be more satisfied with life, better able to handle their emotions and interact with others, and take advantage of opportunities (Bar-On, 1997; Mayer, & Salovey, 1993). Moreover, high levels of trait-based emotional intelligence have been linked with higher levels of mental and physical health (Parker, Taylor, & Bagby,

2001). Individuals with Asperger's Disorder, a disorder of social and emotional dysfunction, are reportedly at risk for poor life outcomes and poor mental and physical health (Tantam, 2000). Consequently, developing trait-based emotional intelligence may foster positive outcomes for this population.

This study found that respondents with Asperger's Disorder perceived themselves as having low skill in several trait-based emotional intelligence domains as well as diminished social relationships and a poorer quality of life. One may deduce from these results, thus, that these individuals do not perceive themselves as always acting in socially and emotionally effective manners. Lower scores on the BarOn EQ:i-S, like those obtained in this study, suggest the need for improvement. Fortunately, emotionally intelligent behaviour (and its related skills) can be developed through training and intervention (Bar-On, 2005; Parker, 2000). Edward and Warelow (2005) elaborate further, and argue that emotional intelligence can be developed – and increased – through support and education. Edward and Warelow (2005) suggest, likewise, that resilient behaviours can be learned and built into life experiences.

Specific suggestions for the development of emotional and social life skills are provided for the BarOn EQ:i-S scales in its technical manual (Bar-On, 2005). However, when searching for clinical interventions for the Asperger's Disorder population that strengthen trait-based emotional intelligence, one finds little information (Parker, 2000). Certainly, social skills groups may be of some benefit to this community (Southwick, Vythilingam, & Charney, 2005). However, specific individual training (addressing social and emotional functioning) that is tailored to personal strengths may be best advised. Regrettably, this is not a trend in research. Rather, Kasari and Rotheram-Fuller (2005)

suggest that current research focuses on the limitations, and atypicalities, found within this population.

When considering intervention and assessment of Asperger's Disorder, it is absolutely necessary to examine a number of areas such as developmental and health history, psychological and communicative ability, behavioural management, and psychopharmacology (Klin, & Volkmar, 2003). Such an inclusive view will aid in formulating a comprehensive picture of the individual. Given that Asperger's Disorder often remains undiagnosed, but is increasing in prevalence, an all encompassing clinical assessment of this population in research is necessary in order to ensure a 'clean' diagnostic group and the development of interventions that are beneficial to this populations' specific needs (Fombonne, & Tidmarsh, 2003; Tantam, 2003). Despite limitations, this research attempted to obtain the most clinically representative sample of the Asperger's Disorder population. It is suggested that future research utilise a similar strategy.

The author must also suggest that one consider both emotional ability and personal disposition when examining social and emotional interactions. Research suggests that the quality of social interactions is influenced by a number of factors, including personality, motivation, and environmental fit (Lopes, Salovey, Cote, & Beers, 2005). Specific abilities are thus likely to impact quality of social interaction but in concert with other factors. Consequently, one cannot assume that Total EQ, for example, is entirely predictive of feelings of social connectedness. Rather, it may be one of many variables that predict it. As mentioned, an in- depth understanding of each individual's strengths and weaknesses

will aid in deciding which factors have the largest influence and which method of intervention will be most successful.

Summary

The current study examined the performance of 23 youth with Asperger's Disorder on a trait-based measure of emotional intelligence. It also examined the relationship of trait-based emotional intelligence to psychological resilience, satisfaction with life, and a variety of psychological and adaptive behaviours. Disconfirmation was received in regards to the first research question: youth with Asperger's Disorder did not, generally, score lower than normative groups on various measures of psychological resilience as measured by the BASC 2, the Resiliency Scale for Adolescents, and the Satisfaction with Life Scale. The study's second research question, which queried whether youth with Asperger's Disorder would perform lower on trait-based emotional intelligence, as measured by the BarOn EQ:i-S, was partially confirmed: youth with the disorder performed lower on some quotients of trait-based emotional intelligence. The study's third research question was also partially confirmed. Results indicate that significant relationships exist between some scores on the BarOn EQ:i-S and measures of psychological resilience.

This study highlights many strengths of the Asperger's Disorder community – especially in psychological and adaptive areas. Relative weaknesses related to social and emotional functioning were reported however but, according to Bar-On (2005), these areas can be developed and improved through training and social support. This study was one of the first, if not the first, to examine the relationship between trait-based emotional intelligence and these outcomes. As such, results from this study will contribute to

assessment, intervention, and health within this community. This research was conducted with the hopes of informing the Asperger's Disorder population of its unique profile. It appears as though, despite adversity, these individuals have found ways in which to compensate for the inherent challenges they face.

References

American Psychiatric Association & DSM-IV (1994). *Diagnostic and statistical manual of mental disorders: Dsm-iv* (4th ed.). Washington: American Psychiatric Association.

Asperger, H. (1944). Die autistischen psychopathen im kindesalter. *Archiv fur Psychiatric und Nervenkrankheiten*, 117, 76 – 136.

Bar-On, R. (1997). *BarOn Emotional Quotient Inventory – Technical manual*. Ontario: Multi-Health Systems Inc.

Bar-On, R. (2000). Emotional and social intelligence. In R. Bar-On and J. D. A. Parker (Eds.), *The handbook of emotional intelligence*. San Francisco: Jossey-Bass.

Bar-On, R. (2005). *The BarOn emotional quotient inventory: Short*. Ontario: Multi-Health Systems Inc.

Baron-Cohen, S. (2000). Is Asperger syndrome/ high functioning autism necessarily a disability? *Development and Psychopathology*, 12, 489 – 500.

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, 34(2), 163 – 175.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a “theory of mind?” *Cognition*, 21, 37 – 46.

Beaumont, R., & Newcombe, P. (2006). Theory of mind and central coherence in adults with high-functioning autism or Asperger syndrome. *Autism*, 10(4), 365-382.

Benetti, C., & Kambouropoulos, N. (2006). Affect-regulated indirect effects of trait anxiety and trait resilience on self-esteem. *Personality and Individual Differences*, 41, 341-352.

Bisschop, M. I, Kriegsman, D. M. W, Beekman, A. T. F, & Deeg, D. J. H. (2004). Chronic diseases and depression: The modifying role of psychosocial resources. *Social Science Medicine*, 4(59), 721 – 733.

Block J., & Kremen, A. M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology*, 70, 349 – 361.

Bolton, P., & Rutter, M. (1990). Genetic influences in autism. *International Review of Psychiatry*, 2, 67 – 80.

Bordens, K. S., & Abbott, B. B. (1978). *Research design and methods: A process approach*. Toronto: McGraw Hill.

- Brackett, M.A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and School Psychology Bulletin*, 29(9), 1147 – 1158.
- Collins, D., Davis, M., & Vander Stoep, A. (2000). Transition, a time of developmental and institutional clashes. In H. B. Clark & M. Davis (Eds.), *Transition into adulthood: A resource for assisting young people with emotional or behavioural difficulties*. Baltimore: Brookes.
- Conte, J. M. (2005). A review and critique of emotional intelligence measures. *Journal of Organizational Behaviour*, 26, 433 – 440.
- Cronbach, L. J. (1960). *Essentials of psychological testing* (2nd ed.) New York: Harper and Row.
- Dawda, D., & Hart, S. D. (2000). Assessing emotional intelligence: Reliability and validity of the Bar-On Emotional Quotient Inventory (EQ-i). *Journal of Personality & Individual Differences*, 28, 797-812.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 130 – 142.
- Dyck, M. J., Ferguson, K., & Shochet, I. M. (2001). Do autism spectrum disorders differ from each other and from non-spectrum disorders on emotion recognition tests? *European Child and Adolescent Psychiatry*, 10, 105 – 116.
- Edward, K. L., & Warelow, P. (2005). Resiliency: When coping is emotionally intelligent. *Journal of the American Psychiatric Nurses Association*, 11, 101 – 103.

- Ehlers, S., & Gillberg, C. L. (1993). The epidemiology of asperger syndrome: A total population study. *Journal of Child Psychology and Psychiatry*, 34(8), 1327 - 1350.
- Fombonne, E., & Tidmarsh, L. (2003). Epidemiologic data on Asperger disorder. *Child and Adolescent Psychiatric Clinics*, 12, 15 – 21.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. The broaden-and-build theory of positive emotions. *American Psychology*, 56, 218 – 226.
- Frith, U., & Happe, F. (1985). Autism: Beyond “theory of mind.” *Cognition*, 50, 115 – 132.
- Frith, U., & Happe, F. (1996). The neuropsychology of autism. *Brain: A Journal of Neurology*, 119(4), 1377 – 1400.
- Gannon, N., & Ranzjin, R. (2004). Does emotional intelligence predict unique variance in life satisfaction beyond IQ and personality? *Personality and Individual Differences*, 38, 1353 – 1364.
- Gardner, H. (1983). *Frames of mind*. New York: Basic Books.
- Gillberg, C. (1991). Clinical and neurobiological aspects of Asperger syndrome in six family studies. In U. Frith (Ed.), *Autism and Asperger Syndrome*. Cambridge: Cambridge University Press.
- Gillberg, C. L. (1992). The Emanuel Miller memorial lecture 1991. Autism and autistic-like conditions: Subclasses among disorders of empathy. *Journal of Child Psychology and Psychiatry*, 33(5), 813 – 842.

Goldman, S. L., Kraemer, D. T., & Salovey, P. (1996). Beliefs about mood moderate the relationship to illness and symptom reporting. *Journal of Psychosomatic Resiliency*, 41, 115 – 128.

Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.

Griffith, E. M., Pennington, B. F., Wehner, E. A., & Rogers, S. J. (1999). Executive functions in young children with autism. *Child Development*, 70(4), 817 – 832.

Gutstein, S. E., & Whitney, T. (2002). Asperger syndrome and the development of social competence. *Focus on Autism and other Developmental Disabilities*, 17(16), 161 – 171.

Gutstein, S. E., & Whitney, T. (2002). Asperger syndrome and the development of social competence. *Focus on Autism and other Developmental Disabilities*, 17(16), 161 – 171.

Hays, J. C., Steffens, D. C., Flint, E. P., Bosworth, H. B., & George, L. K. (2001). Does social support buffer functional decline in elderly patients with unipolar depression? *American Journal of Psychiatry*, 158, 1850 – 1855.

Heavey, L., Phillips, W., Baron-Cohen, S., & Rutter, M. (2000). 'The Awkward Moments Test: A naturalistic measure of social understanding in autism,' *Journal of Autism and Developmental Disorders*, 30, 225-236.

Hedlund, J., & Sternberg, R. J. (2000). Too many intelligences? In R. Bar-On and J. D. A. Parker (Eds.), *The handbook of emotional intelligence*. San Francisco: Jossey-Bass.

Hobson, R. P., & Lee, A. (1989). Emotion related and abstract concepts in autistic people: Evidence from the British Picture Vocabulary Scale. *Journal of Autism and Developmental Disorders*, 19, 601-623.

Holahan, C. J., Holahan, C. K., Moos, R. H., & Moos, P. L. (1995). Social support, coping and depressive symptoms in a late-middle-aged sample of patients reporting cardiac illness. *Health Psychology, 14*, 152 – 163.

Kanner, L. (1943). Autistic disturbance of affective contact. *Nervous Child, 2*, 217 – 250.

Kasari, C., & Rotheram-Fuller, E. (2005). Current trends in psychological research on children with high-functioning autism and asperger disorder. *Current Opinion in Psychiatry, 18*, 497 – 501.

Kenworthy, L. E., Black, D. O., Wallace, G. L., Ahluvalia, T., Wagner, A. E., & Sirian, L. M. (2005). Disorganization: The forgotten executive dysfunction in high-functioning autism (hfa) disorders. *Developmental Neuropsychology, 28*(3), 809 – 827.

Kim, J. A., Szatmari, P., Bryson, S. E., Streiner, D. L., & Wilson, F. J. (2000). The prevalence of anxiety and mood problems among children with autism and Asperger syndrome. *Autism, 4*(2), 117 – 132.

Klin, A. (2000). Attributing social meaning to ambiguous visual stimuli in higher-functioning autism and Asperger syndrome: The social attribution task. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 41*, 831 – 846.

Klin, A., & Volkmar, F. R. (2003). Asperger syndrome: Diagnosis and external validity. *Child and Adolescent Psychiatric Clinics, 12*, 1 – 13.

Krug, D., & Arick, J. (2003). *Krug Asperger's Disorder Index*. Texas: Pro-Ed.

- Landa, R. J., & Goldberg, M. C. (2005). Language, social, and executive functions in high functioning autism: A continuum of performance. *Journal of Autism and Developmental Disorders*, 33(5), 557 – 573.
- Laurent, A. C., & Rubin, E. (2004). Challenges in emotional regulation in Asperger syndrome and high functioning autism. *Topics in Language Disorders*, 24(4), 286 – 297.
- Leslie, A. M., & Frith, U. (1990). Prospects for a cognitive neuropsychology of autism: Hobson's choice. *Psychological Review*, 97(1), 122 – 131.
- Livingstone, H. A., & Day, A. L. (2005). Comparing the construct and criterion-related validity of ability-based and mixed-model measures of emotional intelligence. *Educational and Psychological Measurement*, 65(5), 757 -779.
- Lopes, P. N., Salovey, P., Cote, S., & Beers, M. (2005). Emotion regulation abilities and the quality of social interaction. *Emotion*, 5(1), 113 – 118.
- Losh, M., & Capps, L (2003). Narrative ability in high-functioning children with autism and Asperger's syndrome. *Journal of Autism and Developmental Disorders*, 33, 239 – 251.
- Luthar, S., & Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies. *Development and Psychopathology*, 12, 857 – 885.
- Lynch, M., & Cicchetti, D. (1998). An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology*, 10, 235 – 257.

Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favourable and unfavourable environments: Lessons from successful children. *American Psychologist*, 53, 205 – 220.

Matsumoto, D. (1993). Ethnic differences in affect intensity, emotion judgements, display rule attitudes, and self reported emotional expression in an American sample. *Motivation and Emotion*, 17, 107 – 123.

Mayer, J. D., Caruso, D., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, 27, 267 – 298.

Mayer, J.D., Salovey, P., & Caruso, D. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)*. Ontario: Multi-Health Systems Inc.

Newsome, S., Day, A. L., & Cantano, V. M. (2000). Assessing the predictive validity of emotional intelligence. *Personality & Individual Differences*, 29, 1005 – 1016.

Newsome, S.N., Day, A. L., & Catano, V. M. (2000). Assessing the predictive validity of emotional intelligence. *Personality and Individual Differences*, 29, 1005 – 1016.

Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003).

Adolescent resilience: A concept analysis. *Journal of Adolescence*, 26, 1 – 11.

Ozonoff, S., Pennington, B. F., & Rogers, S. J. (1991). Executive function deficits in high-functioning autistic individuals: Relationship to theory of mind. *Journal of Child Psychology and Psychiatry*, 32(7), 1081 – 1105.

Palmer, B., Donaldson, C., & Stough, C. (2002). Emotional intelligence and life satisfaction. *Personality and Individual Differences*, 33, 1091-1100.

Parker, J. D. A. (2000). Emotional intelligence: Clinical and therapeutic implications. In R. Bar-On, & J. D. A. Parker (Eds.), *The handbook of emotional intelligence*. San Francisco: Jossey Bass.

Parker, J. D. A., Creque Sr., R. E., Barnhart, D. L., Harris, J. I., Majeski, S., Wood, L. M., Bond, B. J., & Hogan, M. J. (2004b). Academic achievement in high school: Does emotional intelligence matter? *Personality and Individual Differences*, 37, 1321 – 1330.

Parker, J. D. A., Saklofske, D. H., Shaughnessy, P. A., Huang, S. H. S., Wood, L. M., & Eastabrook, J. M. (2005). Generalizability of the emotional intelligence construct: A cross-cultural study of North American aboriginal youth. *Personality and Individual Differences*, 39, 215 – 227.

Parker, J. D. A., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. (2004a). Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and Individual Differences*, 36, 163 – 172.

Parker, J. D. A., Taylor, G. J., & Babgby, R. M. (2000). The relationship between alexitymia and emotional intelligence. *Personality and Individual Differences*, 30, 107 – 115.

Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Personality*, 15, 425 – 448.

Prince-Embury, S. (2006). *Resiliency Scales for Adolescents: A Profile of Personal Strengths*. Texas: Harcourt.

- Reynolds, C. R., & Kamphaus, R. W. (2002). *The clinician's guide to the behaviour assessment for children: BASC*. New York: Guilford Press.
- Rozanski, A., Blumenthal, J. A., & Kaplan, J. (1999). Impact of psychological factors on the pathogenesis of cardiovascular disease and implications for therapy. *Circulation*, 99, 2192 – 2217.
- Russell, E., & Sofronoff, K. (2007). Anxiety and social worries in children with Asperger's syndrome. *Australian and New Zealand Journal of Psychiatry*, 39(7), 633 – 688.
- Rutter, M. (1990). Psychosocial resiliency and protective mechanisms. In J. Rolf, A. Masten, D. Cicchetti, K. Neuchterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology*. NY: Cambridge University Press.
- Salovey, P., & Mayer, J. D. (1989/1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9, 158 – 211.
- Southwick, S. M., Vythilingam, M., & Charney, D. S. (2005). The psychobiology of depression and resilience to stress: Implications for prevention and treatment. *Annual Review of Clinical Psychology*, 1, 255 – 291.
- Stoddart, K. P. (1999). Adolescents with Asperger syndrome: Three case studies of individuals and family therapy. *Autism*, 3(3), 255 – 271.
- Szatmari, P. (1991). Asperger's syndrome: Diagnosis, treatment, and outcome. *Pervasive Developmental Disorders*, 14(1), 81 – 92.
- Tantam, D. (1991). Asperger syndrome in adulthood. In U. Frith (Ed.), *Autism and Asperger Syndrome*. Cambridge: Cambridge University Press.

- Tantam, D. (2000). Psychological disorder in adolescents and adults with Asperger's syndrome. *Autism*, 4(1), 47 – 62.
- Tantam, D. (2003). The challenge of adolescents and adults with Asperger syndrome. *Child and Adolescent Psychiatric Clinics*, 12, 143 – 163.
- Thorndike, E. L. (1920). Intelligence and its uses. *Harper's Magazine*, 140, 227 – 235.
- Thorne, K. J., & Kohut, C. S. (in press). Test review: The Resiliency Scales for Children and Adolescents. *The Canadian Journal of School Psychology*.
- van der Zee, K., & Wabeke, R. (2004). Is trait-emotional intelligence simply or more than just a trait? *European Journal of Personality*, 18, 243 – 264.
- Wade, C., Tavis, C., Saucier, D., & Elias, L. (Eds.) (2004). *Psychology: Canadian edition*. Toronto, Ontario: Pearson Education Canada Inc.
- Wechsler, D. (1999). *Wechsler abbreviated scales of intelligence*. Ontario: Harcourt Assessment.
- Wimmer, H, & Perner, J. (1983). Beliefs about beliefs: Representations and constraining function of wrong beliefs in children's understanding of deception. *Cognition*, 13, 103-128.
- Wing, L. (1981). Asperger's syndrome: A clinical account. *Psychological Medicine*, 11(1), 115 – 129.
- Wing, L., & Potter, D. (2002). The epidemiology of autism spectrum disorders: Is the prevalence rising? *Mental Retardation and Developmental Disabilities Research Reviews*, 8, 151 – 161.

World Health Organization (1992). *Icd-10: International statistical classification of diseases and related health problems, tenth revision*. Geneva: World Health Organization.

Appendix A

Participant Information Questionnaire

This questionnaire should be completed by a parent/guardian of the participant, as it asks about early developmental history. If a parent/guardian is unavailable, a close relative who has knowledge of the individual's early history is acceptable. Please complete the following questionnaire.

Adolescent/Young Adult's name: _____ Gender: _____

Adolescent/Young Adult's date of birth: _____ Age: _____

School/Educational Institution: _____

Grade/Year of Program: _____

If your adolescent/young adult is enrolled in a college/university program, please name the program: _____

Name and school phone number of a teacher/instructor you would be willing to allow the researchers to contact: _____

Name and phone number of a peer you would be willing to allow the researchers to contact:

Official Diagnosis

Who originally diagnosed your adolescent/young adult (name and title)? _____

How old was your adolescent/young adult at the time of the original diagnosis? _____

Has anyone else given a diagnosis to your adolescent/young adult? _____

If so, who gave the diagnosis and what is their title? _____

What was the diagnosis? _____

Has your adolescent/young adult been diagnosed with any other psychological disorders?

Has your adolescent/young adult been diagnosed with any medical disorders? _____

Language Development

Did your adolescent/young adult receive speech therapy before the age of 5? _____

As far as you recall, how old was your adolescent/young adult when s/he began speaking in single words?

How old was your adolescent/young adult when s/he began speaking in short but meaningful phrases? _____

Do you consent to the researcher contacting the individuals you have listed in order to participate in this study?

YES

NO

Signature _____

(parent)

Date _____

Signature _____

(researcher)

Appendix B
Adult Consent Form

I _____
(print your first and last name)

understand the reason for this research project, the contents of the consent form, and my expectations as a participant in this research project. I agree to participate in this research project. I understand that I am free to withdraw from this research project at any time and for any reason. There will be no penalty if I chose to withdraw. I understand that this research project has been designed to collect information about my social and emotional abilities from several perspectives. I agree that the researchers can contact the teacher/instructor and parent named below for the purpose of this research project.

Finally, I give consent for future contact for a follow-up research project should there be one.

(check one) YES _____ NO _____

Teacher/Instructor _____
(name) (phone number and email)

Parent or Close Relative _____
(name) (phone number and email)

(signature of participant) (date)

(signature of research assistant) (date)

Appendix C
Minor Consent Form

I _____

(print your first and last name)

understand the reason for this research project, the contents of the consent form, and my expectations as a participant in this research project. I agree to participate in this research project. I understand that I am free to withdraw from this research project at any time and for any reason. There will be no penalty if I chose to withdraw. I understand that this research project has been designed to collect information about my social and emotional abilities from several perspectives. I agree that the researcher can contact the teacher/instructor named on the parent/guardian consent form for the purposes of this research project.

(signature of participant)

(date)

(signature of parent/guardian)

(date)

(signature of researcher)

(date)

Parental/Guardian Consent

I give my son/daughter consent to participate in the research project being conducted by the researchers (listed on the attached “research tem” document), from the Universities of Manitoba and Calgary. My signature at the end of this consent form will indicate that the researchers have answered all of my questions and that I voluntarily consent to my son/daughter’s participation in this project. I understand that no individual assessment results will be shared from my son/daughter’s participation in this research project. However, I understand that I may contact the researchers at the numbers provided to enquire about the results of this project. I realize that I am free to withdraw my son/daughter from participation at any time, for any reason, without penalty. I have read and understood this consent form. I realise that I may ask questions in the future about the research project, and I indicate my free consent to research participation by signing the research consent form.

I give my consent to contact the following teacher/instructor for the purposes of this research project.

(check one) YES _____ NO _____

Teacher/Instructor _____
(name – please print) (phone number and email)

I give my consent to be contacted both during and after participation in this research project should the researchers have further questions regarding this research project.

(check one) YES _____ NO _____

Finally, I give consent for future contact for a follow-up research project should there be one

(check one) YES _____ NO _____

(signature of parent/guardian) (date)

(parent/guardian contact phone number) (parent/guardian alternate contact)

(parent mailing address)

(signature of researcher)

Appendix D
Clinician Script

The following script is to be read to primary participant at initiation of testing.

Clinician: Thank-you for agreeing to help us with this study. Today we are going to do a number of tasks designed to measure how you behave, think, and act in social situations and daily life. The tasks may take from a half hour to 4 hours to complete. In addition, you will complete some tasks designed to understand your thinking processes.

If at any time you want to take a break, or need to go to the washroom, please ask. I may also initiate a break if I think I need one. Please remember that your participation in this study is purely voluntary and that you may choose to stop at any time. Also, if you have any questions at any time, please feel free to ask me.

Are you ready to begin?

Appendix E

Ethics Approval

UNIVERSITY OF MANITOBA APPROVAL CERTIFICATE

26 June 2006

TO: Janine Montgomery
Principal Investigator

FROM: Bruce Tefft, Chair
Psychology/Sociology Research Ethics Board (PSREB)

Re: Protocol #P2006:052
“Emotional Intelligence and Resiliency in Individuals with Asperger Disorder”

Please be advised that your above-referenced protocol has received human ethics approval by the **Psychology/Sociology Research Ethics Board**, which is organized and operates according to the Tri-Council Policy Statement. This approval is valid for one year only.

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

Please note:

- if you have funds pending human ethics approval, the auditor requires that you submit a copy of this Approval Certificate to Kathryn Bartmanovich, Research Grants & Contract Services (fax 261-0325), including the Sponsor name, before your account can be opened.
- if you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.

Please send all correspondence to: