Fall 12-1-2014

Online Experiences of Adolescents With Asperger's Syndrome And High-functioning Autism

Shin Ruu Ko
Indiana State University

ONLINE EXPERIENCES OF ADOLESCENTS WITH ASPERGER'S SYNDROME AND HIGH-FUNCTIONING AUTISM

A Dissertation

Presented to

The College of Graduate and Professional Studies

Department of Communication Disorders and Counseling, School, and Educational Psychology

Indiana State University

Terre Haute, Indiana

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

---

by

Shin Ruu Ko

December 2014

Keywords: Autism, Asperger's, Cyberbullying, Social Connectedness, Social Media

COMMITTEE MEMBERS

Committee Chair: Linda Sperry, Ph.D.

Chair of Communication Disorders and Counseling, School, and Educational Psychology

Professor of Educational and School Psychology

Indiana State University

Committee Member: Leah Nellis, Ph.D.

Director of Ph.D. Program in School Psychology

Associate Professor of Educational and School Psychology

Indiana State University

Committee Member: Hemalatha Ganapathy-Coleman, Ph.D.

Associate Professor of Educational and School Psychology

Indiana State University

Committee Member: Breanna Gile, Ph.D.

Graduate Faculty Status

Indiana State University

ABSTRACT

This study investigated the online experiences of 10 adolescents with Asperger's Disorder (AD). This study was exploratory in nature and employed a qualitative approach. Three research questions guided this study: (a) What are the positive and negative online experiences of youth with ASD?, (b) What are the perceptions of online interactions in comparison to offline interactions held by youth with ASD?, and (c) What experiences with social connectedness and cyberbullying do youth with ASD have as a result of Internet usage?

Four themes and 14 subthemes emerged during the process of analyzing the data: (a) Benefits of Internet Usage (Social, Emotional, Educational, and Interests); (b) Bringing People Closer (Reducing the Miles in Between, Accessibility to People, and Easier Communication); (c) Negative Social Interactions (Negativity, Trolling, and Cyberbullying); (d) Combating Negative Social Interactions (Prevention, Avoid/Ignore/Leave, Support of Peers, Seek Help from Adults/Authority Figures).

Results from this study suggest that youth with ASD generally have positive experiences on the Internet. These positive experiences translate into many benefits that impact the development of youth with ASD. When faced with social experiences online, participants demonstrated how perceptive and resourceful they can be in finding ways to solve their problems. These findings demonstrate the potential for youth with ASD to learn, grow, and overcome various ASD symptomologies through online interactions and activities.

ACKNOWLEDGMENTS

All praise, honor, and glory to God for His abundant grace and mercy that led to the accomplishment of this dissertation. Through Him, all things are possible.

I would like to take this opportunity to thank my chair, Dr. Linda Sperry, for her unwavering patience and support throughout my graduate studies. Her genuine care for her students and her love of learning has made her an amazing mentor to aspire to. Thank you for your consistent dedication and investment in my academic career, I hope I have made you a proud mentor!

I would also like to extend my gratitude to my other committee members, Dr. Leah Nellis, Dr. Hema Ganapathy-Coleman, and Dr. Breanna Gile who graciously agreed to be on my committee after staff changes left me without a committee. Thank you for your time, expertise, and willingness to expedite my dissertation process.

To my Auntie Pauline, thank you for being my practical, emotional, and spiritual support during my graduate studies in Indiana. Your presence in my life (and my family's life) has been an incredible gift from God. I am forever indebted to your overwhelming generosity and love.

Last, but not least, to my family who have walked alongside with me during this process, thank you for always believing in me even when I did not believe in myself and for pushing me when needed. I am finally done! You will not need to worry about me not finishing anymore!

TABLE OF CONTENTS

ABSTRACT iii

ACKNOWLEDGMENTS iv

LIST OF TABLES x

INTRODUCTION 1

Problem Statement 4

Purpose of Study 4

Theoretical Framework 5

Impact of Individual Characteristics on Development 5

Technology as a Facilitation Tool 6

Bidirectional Spiraling Relationships 7

Cyberspace as a Unique Environment 8

Research Questions 9

LITERATURE REVIEW 10

Autism Spectrum Disorders 10

ASD Diagnostic Criteria and Recent Changes 11

Implications of Changes in ASD Diagnostic Criteria 14

The Internet as a Unique Environment and Its Relevance to ASDs 16

External Controls 17

Identity Exploration 18

Self-Presentation 19
Technology/Internet as a Social Communication Tool and Its Relevance to ASDs 20
Receiver Process Effects 20
Message Sender Effects 21
Channel Attributes 21
Feedback Effects 21
Social Connectedness and ASD 22
Type of Technology and Usage 22
Gender 24
Social Anxiety 25
Bullying/Cyberbullying and ASD 25
Bullying 25
Bullying Among Youth with ASD 26
Cyberbullying 29
Cyberbullying Among Youth with ASD 30
Comparing Cyberbullying and Bullying 32
METHODOLOGY 35
Philosophical and Research Framework: Interpretive Phenomenological Analysis 35
Researcher as Instrument 37
Participants 38
Inclusion Criteria 38
Sample Size 41
Data Collection 41

Recruitment 41
Informed Consent 42
Semi-Structured Interviews 42
Recording and Transcription 43
Data Analysis 43
Confidentiality 46
Trustworthiness 46
Credibility 46
Transferability 47
Dependability 48
Confirmability 48
Limitations 48
RESULTS 50
Participants 51
Participant Demographics 51
Participant Computer and Internet Usage 52
Participant Computer and Internet Activities 53
Participant Background 55
Participant 1: Elizabeth 55
Participant 2: Nathan 55
Participant 3: Jordan 56
Participant 4: Kory 57
Participant 5: Neil 57

Participant 6: Matt 58
Participant 7: Betty 58
Participant 8: James 59
Participant 9: Mandy 59
Participant 10: Roger 60
Results 60
Benefits of Internet Usage 60
Social 60
Emotional 62
Educational 64
Interests 67
Bringing People Closer 67
Reducing the Miles in Between 67
Accessibility to People 69
Easier Communication 71
Negative Social Interactions 75
Negativity 76
Trolling 76
Cyberbullying 77
Combating Negative Social Interactions 79
Prevention 79
Avoid, Ignore, Leave 79
Support of Peers 80

Seek Help From Adults and Authority Figures 81

DISCUSSION 83

Theme 1: Benefits of Internet Usage 83

Theme 2: Bringing People Closer 85

Theme 3: Negative Social Interactions 87

Theme 4: Combating Negative Social Interactions 89

Participants' Versus Typically Developing Adolescents' Online Social Experiences ... 91

Online Social Experiences 91

Gender Differences 92

Age Differences 93

Implications for Practice 93

Limitations 96

Future Research 97

Conclusion 100

REFERENCES 101

APPENDIX A: RECRUITMENT FLYER 118

APPENDIX B: CONSENT FORM 119

APPENDIX C: ASSENT FORM 123

APPENDIX D: INTERVIEW SCHEDULE 125

LIST OF TABLES

Table 1. Defining Characteristics of PDD Subtypes 11

Table 2. ASD Diagnostic Impairments from DSM-IV-TR 12

Table 3. Participant Demographics.....51

Table 4. Participant Computer and Internet Usage.....53

Table 5. Participant Computer and Internet Activities 54

CHAPTER 1

INTRODUCTION

According to Prensky (2001), today's students represent the first generation of *digital natives*, a term used to describe those born into a world of technology. This generation is emerging as the world's dominant demographic. Meanwhile *digital immigrants*, a term used to describe those not born into a world of technology but who in their adolescence or adulthood adopted most aspects of new technology, are reducing in numbers (Joy, 2012). Based on recent research conducted by the Pew Research Center, teenagers (12-17 years of age) as a demographic age group have the highest percentage of Internet usage at 95%, a statistic that has remained constant since 2006 (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). However, the nature of Internet usage has dramatically changed during that time, from stationary computers confined within the home, to mobile, constant connections that are easily accessible and ubiquitous. As Madden et al. (2013) proposed, teenagers are able to stay connected in more ways than ever, with 93% of teens owning a computer/laptop or having access to one, 78% owning a cell phone, and 23% owning a tablet. In a national survey conducted by the Kaiser Family Foundation examining media usage among children and youth 8-18 years of age, Rideout, Foehr, and Roberts (2010) determined that children and youth spend an average of 7.63 hours per day using entertainment media (e.g., computers, smartphones, electronic devices, television), with 11-14 year olds and 15-18 year olds spending close to 12 hours (11.88 hours

and 11.38 hours, respectively) per day. When taking into account the *media-multitasking* (use of more than one medium simultaneously) they engage in, children and adolescents on average manage to pack an additional three hours' worth of media content into their daily usage (Rideout et al., 2010). Teenagers are spending nearly all of their waking hours connected to one or another media device.

Given the popularity of the Internet and related technologies among youth, researchers have been keen to examine their online activities. One of the most common activities is engaging in social media websites. Social media websites include any website that facilitates social interactions including, but not limited to, social networking sites, gaming sites, virtual worlds, video sites, and blogs (O'Keeffe & Clarke-Pearson, 2011). Eighty-nine percent of teenagers (14-17 years of age) use some form of social media, with 73% reporting daily usage of social networking sites and 47% reporting that they visit social networking sites several times per day (Madden et al., 2013). In addition, 63% of youth indicate that text messaging is their primary mode of daily communication with others, in comparison to talking on a cell phone (39%), in-person socialization outside of a school setting (35%), social network site messaging (29%), instant messaging (22%), talking on landlines (19%), and emailing (6%; Lenhart, 2012). These statistics suggest that a large portion of this generation's social and emotional interactions are happening in cyberspace through technologies such as computers and cell phones (O'Keeffe & Clarke-Pearson, 2011).

There are benefits of youth engaging in online applications such as improved technical and media literacy, exploration of and easier access to interests and information, increased social connectedness with friends (Ito et al., 2008; Valkenburg & Peter, 2009), new opportunities for learning, and fostering individual identities and social skills (Boyd, 2008). While these positive

outcomes seem promising, there are equally as many risks youth are vulnerable to due to their limited self-regulation abilities and susceptibility to peer pressure (O'Keeffe & Clarke-Pearson, 2011). As O'Keeffe and Clarke-Pearson (2011) contended, numerous offline behaviors (e.g., bullying, cliques, sexual experimentation) translate online and have resulted in problems such as cyberbullying (Notar, Padgett, & Roden, 2013), privacy concerns, and sexting. Excessive video game and Internet usage have also been found to put adolescents at risk for depression and suicidality (Messias, Castro, Saini, Usman, & Peeples, 2011). Other negative outcomes such as Internet addiction and concurrent sleep deprivation have been associated with Internet usage as well (Christakis & Moreno, 2009). The aforementioned list of benefits and risks of Internet usage is not static, but rather dynamic, as researchers gain more knowledge on this topic. Research on youth and the Internet is in relatively infant stages, and while researchers struggle to conduct research against the rapid pace at which technology is evolving, a subset of this population has been overlooked in research: youth with disabilities, specifically, youth with autism spectrum disorders (ASD).

ASDs, characterized by impairments in social interactions, communication, and restricted and stereotyped behavior, are the fastest growing developmental disability in the United States and a growing public health concern (Smart, 2011). According to the most recent report on the prevalence of diagnosed ASDs conducted by The Centers for Disease Control and Protection (CDC), ASDs affect 1 in 50 American children (Blumberg et al., 2013). This prevalence rate demonstrates a marked increase from CDC's report from last year which indicated that 1 in 88 children (1 in 54 boys and 1 in 252 girls) in the United States were identified as having ASDs (Baio, 2012). Individuals with ASD often have a heightened understanding of objects, mechanisms, and physical systems (Baron-Cohen et al., 1998). When combined with their

obsessional and narrow interests, the result is overwhelming anecdotal reports of their natural affinity with computers and other forms of information communication technology (ICT). The limited research available on ASD youth and their usage of ICT suggests that they use ICT as much as, and perhaps even more than, typical youth. However, little is known about the online experiences of children with ASD and how these experiences and usage of online applications and ICT shape their development and daily functioning.

Problem Statement

The lack of research on youth with ASD and their online experiences is surprising as their clinical features make them uniquely vulnerable to the benefits and risks of Internet usage. Although many individuals with ASD use ICT with competency and ease, their impairments (social interaction, communication, and restricted or stereotyped behavior) make them highly susceptible to bullying and cyberbullying, as well as other potential online risks such as privacy issues due to their lack of social awareness and excessive Internet usage due to their intense interests. Despite these risks, cyberspace has the potential to facilitate communication and relationships for individuals with ASD as they are innately motivated to use ICT, and the lack of nonverbal cues online may allow for easier communication and socialization.

Purpose of Study

The purpose of this study was to explore and understand the online experiences of ASD youth by identifying positive and negative aspects of computer and Internet usage from their perspective. Specifically, this study explored how the Internet has contributed to their experience of the major benefit and risk of Internet usage: social connectedness and cyberbullying. Exploration of the online experiences of youth with ASD does not only fill the gap in research conducted on these youth and the Internet, but also deepens an understanding of

their online experiences that may lead to potential intervention strategies for learning and social skills development.

Theoretical Framework

Bronfenbrenner's (1979) ecological systems theory postulated that to understand human development, one must consider the *context* in which the development occurs. The context refers to the levels of environment an individual develops in, as well as the system of relationships between those levels and its impact on the functioning of the child. The levels of environment are as follows:

- Microsystem: structures with which a child has direct contact such as family, school, and neighborhood;
- Mesosystem: connections between the structures in a child's microsystem such as the relationship between a child's parents and teacher;
- Exosystem: structures which indirectly affect the child such as a parent's workplace schedule; and
- Macrosystem: larger principles such as cultural values, customs, and laws, which indirectly affect the child through their permeation of all levels.

This theory was later termed the bio-ecological systems theory (Bronfenbrenner & Ceci, 1994) to emphasize the individual's own influence on development (i.e., genetic or cognitive aspects). Several features of this theory are useful for examining the online experiences of ASD youth.

Impact of Individual Characteristics on Development

A highlight of the bio-ecological systems theory is the emphasis on the individual within the microsystem and the individual's role in changing the context of the environment that shapes his or her development. Bronfenbrenner and Ceci (1994) acknowledged that an individual's

biological/genetic and personal characteristics contribute to changing the social situation of an individual. Tudge, Mokrova, Hatfield, and Karnik (2009) categorized these characteristics into three types:

- Demand characteristics: characteristics that are considered immediate stimulus to another person such as age, gender, and physical appearance;
- Resource characteristics: characteristics related to mental/emotional (e.g., experiences, skillset, and intelligence), social, and material resources; and
- Forced characteristics: characteristics related to differences in temperament, motivation, and persistence.

The focus on biological/genetic and personal characteristics is particularly applicable to children with disabilities. As a part of their disorder, children and youth with ASD present challenges with social interaction, communication, and restricted or stereotyped behavior as well as many other clinical features that affect their development, particularly in their relationships with peers. These clinical presentations of their disorder can be understood from Bronfenbrenner's categorization of characteristics. As Tudge et al. summarized, the changes these characteristics promote can vary, from being relatively passive (e.g., how others react to individuals with ASD on the basis of demand characteristics), to more active (e.g., how technologically savvy youth with ASD can change their environment due to their resource characteristics), to most active (e.g., how the desire for friendships in individuals with Asperger's syndrome changes the environment).

Technology as a Facilitation Tool

The ecological systems theory (Bronfenbrenner, 1979) was established prior to the development of the Internet. At that time, the technology available, namely television, was

conceptually situated in the microsystem of the child (Johnson, 2010a, 2010b). In 2008, Johnson and Puplampu proposed that technological tools not only simply reside within the microsystem but also mediate interactions between the child and others in the microsystem. This dimension of the microsystem, which Johnson and Puplampu named the ecological techno-subsystem, includes the child's interactions with both human (e.g., peers) and nonhuman (e.g., hardware) elements of information, communication, and recreation technologies (Johnson, 2010a). Walther's (1996) hyperpersonal computer-mediated communication theory provided an explanation of how technology acts as a tool that facilitates communication and social interaction.

Bidirectional and Spiraling Relationships

The ecological systems theory contends that individuals are in constant interaction with their environments and that both individuals and their environments constantly affect one another, creating a bidirectional relationship. From this perspective, a child's online experience can be enhanced or exacerbated by their relationships with others (e.g., peers, teachers, adults, community) in various offline environments. Johnson (2010b) furthered the concept by moving away from a two-dimensional representation of environmental influences on child development. She proposed a holistic ecological techno-microsystem in which children's social, emotional, cognitive, and physical development are conceptualized as the result of constant "reciprocal and spiraling interactions between child characteristics (i.e., bio-ecology) and use of communication, information, and recreation technologies (i.e., techno-subsystem) across home, school, and community environments (i.e., microsystem)" (Johnson, 2010b, p. 34). For instance, a child small in stature (child characteristic) may have a physical disadvantage when being physically victimized at school but have an advantage online using the anonymity of the Internet

(technology) to victimize the bully, in the process becoming a cyberbully himself. His success online may give him a sense of invincibility that prompts him to retaliate at school the following day and may manifest in a spiraling cycle of offline and online behaviors. Another theory that provides a complementary explanation to this bidirectional and spiraling relationship is Bandura's (1977) social learning theory, which emphasizes the importance of learning through observation and the impact of mental states on learning. By observing and experiencing bullying behavior offline, the victim learns to imitate and express that behavior online through cyberbullying and may be inclined to repeat that behavior again due to being intrinsically motivated from the satisfaction of achieving revenge.

Cyberspace as a Unique Environment

While cyberspace can be seen as an extension of the systems of relationships youth have within their physical environments, it can also be conceptualized as an intangible environment which is uniquely different from physical environments. As proposed by Johnson and Puplampu (2008) and Johnson (2010b), the techno-subsystem does facilitate the interactions between youth with ASD and their peers. However, these technological tools are used within an online culture that is uniquely different from offline interactions.

In summary, the ecological systems theory and its expanded versions facilitate the conceptualization of this research project on youth with ASD and the Internet by (a) recognizing the individual biological/genetic and personal characteristics of persons with ASD and its influence on their development; (b) presenting technology as a facilitation tool that aids in communication and social interactions; (c) acknowledging the bidirectional and spiraling influences on relationships between online and offline worlds; and (d) recognizing cyberspace as an intangible environment both similar and different from offline reality.

Research Questions

In light of these insights, the following research questions guided this study:

1. What are the positive and negative online experiences of youth with ASD?
2. What are the perceptions of online interactions in comparison to offline interactions held by youth with ASD?
3. What experiences with social connectedness and cyberbullying do youth with ASD have as a result of Internet usage?

CHAPTER 2

LITERATURE REVIEW

Autism Spectrum Disorders

Pervasive developmental disorder (PDD) is an umbrella term that describes a range of neurodevelopmental disorders characterized by a triad of impairments in social interaction and communication as well as restricted or stereotyped behavior. For the past two decades, these conditions have been categorized into five disorders based on symptom severity and differences in language development, cognition, and social behavior. The five disorders include: autistic disorder (AD, also known as classic autism), Asperger's disorder (AS, also known as Asperger syndrome), pervasive developmental disorder not otherwise specified (PDD-NOS), Rett's disorder (RD, also known as Rett Syndrome), and childhood disintegrative disorder (CDD). The characteristics of each category are presented in Table 1. The term *autism spectrum disorder* (ASD) has been used interchangeably with PDD but is widely used to refer to three of the five PDDs: AD, AS, and PDD-NOS. Due to the extremely low prevalence rates of RD (1:10,000-22,000 girls; Ben Zeev Ghidoni, 2007; Percy, 2002) and CDD (1-2:100,000 children with ASD; Fombonne, 2002), these two rare genetic disorders are often considered to be separate medical conditions and are not commonly treated as an ASD.

Table 1

Defining Characteristics of PDD Subtypes

Disorder	Characteristics
AD	Impaired social interaction and communication Restricted/stereotyped interests or behaviors (e.g., hand/finger flapping, rocking) Onset prior to age 3
AS	Impaired social interaction Normal communication/language development Restricted/stereotyped interests or behaviors Symptoms typically less severe than AD and normal/above normal cognitive abilities
PDD-NOS	Impaired social interaction Impaired communication or restricted/stereotyped interests or behaviors Full criteria not met for AD and/or onset after age 3
RD	Initial development normal during first 6 months Onset 6-18 months; progressive degeneration begins 1-4 years of age Loss of movement/coordination, communication, and thinking abilities Distinctive hand movements (wringing) Occurs almost exclusively in females
CDD	Initial development normal at least first 2 years after birth Degeneration of previously acquired skills (e.g., adaptive, motor, play) Impaired social interaction and/or communication and/or restricted/stereotyped behaviors

ASD Diagnostic Criteria and Recent Changes

Although there has been much advancement in research on the biology of ASDs, these disorders currently cannot be detected using any biological or physical measurements. In the absence of biological markers, a descriptive diagnosis is given based on the presence of coinciding behavioral characteristics that demonstrate impairments in social interaction and communication and restricted or stereotyped behavior (see Table 2) set forth by the *Diagnostic*

and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association [APA], 2000). Although the following table is not derived from the most recent version of the DSM, it is being presented as participants for this study were recruited by their diagnosis based on the DSM-IV-TR.

Table 2

ASD Diagnostic Impairments

Impairments	Characteristics
Social Interaction	Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction Failure to develop peer relationships appropriate to developmental level Lack of spontaneous seeking to share enjoyment, interests, or achievements with others (e.g., by a lack of showing, bringing, or pointing out objects of interest) Lack of social or emotional reciprocity
Communication	Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime) In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others Stereotyped and repetitive use of language or idiosyncratic language Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level
Repetitive, Restricted Behavior	Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus Apparently inflexible adherence to specific, nonfunctional routines or rituals Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements) Persistent preoccupation with parts of objects

Note. From the *DSM-IV-TR*, by the American Psychiatric Association, 2000, Washington, DC: Author.

Trained physicians and psychologists diagnose an individual with ASD by gathering behavioral information using methods such as interviews (e.g., Autism Diagnostic Interview –

Revised [ADI-R]; Rutter, LeCouteur, & Lord, 2003), observations (e.g., Autism Diagnostic Observation Schedule, Second Edition [ADOS-2]; Lord et al., 2012), and other assessment tools and rating scales such as the Social Responsiveness Scale, Second Edition (SRS-2; Constantino & Gruber, 2012) and the Gilliam Asperger's Disorder Scale (GADS; Gilliam, 2001). Symptomology and severity vary greatly, and two individuals with the same diagnoses may present with different sets of abilities, symptoms, and challenges. The uniqueness and heterogeneity of ASDs have made diagnosis difficult, particularly in distinguishing between "higher level" subgroups of ASDs including high-functioning autism (HFA), AS, and PDD-NOS.

In order to reflect current research and to increase validity and consistency in the diagnosis of ASDs, the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* ([DSM-5] APA, 2013a) revised the diagnostic criteria for autistic and related disorders. The major changes in ASD diagnostic paradigms in the DSM-5 include (APA, 2013a, 2013b; Autism Speaks, 2013; Froehlich & Fung, 2012; Rhode Island Technical Assistance Project, 2013):

- Elimination of subcategories: The new classification system in the DSM-5 consolidates discrete PDDs (AD, AS, PDD-NOS, CDD) into a single diagnostic category of ASD. Instead of existing separately, these disorders are subsumed under ASD with a specified level of severity ranging from Level 1 (least severe) to Level 3 (most severe). RD is no longer considered part of the autism spectrum.
- Consolidation of social interaction and communication domains: The three defining dimensions of ASD behavior (impaired social interaction, impaired communication, and presence of restricted, repetitive behaviors and interests) are now defined by two domains (impaired social communication/social interaction and restricted/repetitive behaviors and

interests) as it is difficult to separate deficits in communication and social interaction due to the overlap of these two areas.

- Removal of "language delay" as a criterion for diagnosis: In the DSM-IV-TR, a language delay was required for a diagnosis of AD while the absence of a language delay was required for a diagnosis of AS. With the removal of language delay as a diagnostic criterion, Social Communication Disorder (SCD), a new communication disorder separate from ASD, was introduced in the DSM-5 to allow for a diagnosis of disabilities in social communication without the presence of restricted/repetitive behaviors and interests. It is hypothesized that some individuals with a previous diagnosis of PDD-NOS may be better represented with a SCD diagnosis (Tsai, 2012).
- Change in age of onset: A more flexible criterion of "early childhood" in the DSM-5 replaced the age of onset of symptoms (before age 3) in the DSM-IV-TR. It is believed that this change "encourages earlier diagnosis of ASD but also allows people whose symptoms may not be fully recognized until social demands exceed their capacity to receive the diagnosis" (APA, 2013b, p. 2).

Implications of Changes in ASD Diagnostic Criteria

The diagnostic changes implemented in the DSM-5 have prompted many concerns from scientific, clinical, and ASD communities, such as the loss of ASD identities, ramifications regarding service eligibility, and compatibility of historical and future ASD research. The common denominator linking these concerns is whether individuals who met diagnostic criteria for an ASD under the DSM-IV-TR would continue to meet criteria under the DSM-5. The literature is inconsistent on this issue, with some studies suggesting a significant reduction (e.g., Gibbs, Aldridge, Chandler, Witzlsperger, & Smith, 2012; Matson, Belva, Horovitz, Kozlowski,

& Mamburg, 2012) in ASD diagnoses based on the new DSM-5 criteria and others suggesting a minimal reduction (e.g., Huerta, Bishop, Duncan, Hus, & Lord, 2012; Mazefsky, McPartland, Gastgeb, & Minshew, 2013).

McPartland, Reichow, and Volkmar (2012) examined the sensitivity and specificity of the DSM-5 criteria using DSM-IV field trials of 933 individuals and reported that approximately 40% of DSM-IV-TR-diagnosed ASD participants did not meet DSM-5 criteria for an ASD. More alarmingly, they also found that 75% of participants with AS and 72% with PDD-NOS did not meet DSM-5 ASD criteria, suggesting that a significant portion of high-functioning individuals with ASD may be excluded from the autism spectrum based on the DSM-5 guidelines. Similarly, Taheri and Perry (2012) found that sensitivity varied depending on cognitive ability, with only 22.2% of ASD individuals with an IQ above 70 meeting DSM-5 criteria in comparison to the 89.7% of ASD individuals with an IQ below 40 meeting criteria. Mandy, Charman, and Skuse (2012) found that although the proposed DSM-5 criteria excluded a majority of participants previously diagnosed with PDD-NOS, individuals with a previous diagnosis of AS or those with higher cognitive abilities were less affected.

Despite these findings, the APA's Neurodevelopmental Work Group has defended the ASD criteria changes in the DSM-5 (APA, 2013a), citing the largest and most comprehensive study on this topic conducted by Huerta et al. (2012), in which minimal sensitivity issues were found with the new DSM-5 ASD criteria. In Huerta et al.'s study, 91% of 4,452 children with a clinical DSM-IV-TR PDD diagnosis met criteria for ASD based on the DSM-5, suggesting that a majority of individuals will retain their ASD diagnosis under the new DSM-5 ASD criteria. Similarly, in a study of the diagnostic status of 498 high-functioning ASD participants, Mazefsky et al. (2013) found that 93% of their participants met DSM-5 criteria for an ASD. Supporters of

the DSM-5 also claim that even if individuals diagnosed with PDD according to DSM-IV-TR criteria fail to meet the criteria for a diagnosis of ASD according to the DSM-5, they will still most likely receive services as they would qualify for the new DSM-5 diagnosis of SCD (Tsai, 2012).

Based on current literature, it is not possible to know what impact the DSM-5 will have on ASD prevalence rates, as the majority of studies on this topic have been based on comparing archival data sets and examining the overlap between individuals meeting DSM-IV and DSM-5 criteria. A major flaw of the extant data sets is the lack of sufficient information to generalize to the DSM-5. Additional years of research using real-time evaluations of information gathered during evaluations are necessary to address the true sensitivity and specificity of the DSM-5 criteria for ASD (Tsai, 2012). While researchers aim to achieve clarity in this matter, the clinical needs of this population remain, regardless of the restructuring or reclassification of this disorder. Due to the extremely recent changes in diagnostic criteria and the lack of consistent research on the sensitivity and specificity of the DSM-5 ASD criteria, the term ASD will be used in this study to refer to the DSM-TR-IV criteria of the disorder, specifically the three major subtypes of the disorder (AD, AS, PDD).

The Internet as a Unique Environment and Its Relevance to ASDs

As suggested by Hellenga (2002), society has come to conceptualize the Internet as a separate reality from everyday life. Words that are synonymous with the Internet--such as *cyberspace*, *virtual reality*, and *online social space*--illustrate our perceived distinction between online and offline experiences. While some researchers argue that youth who are born into technology perceive no difference, as they cannot comprehend a world without technology (Prensky, 2001), Hellenga contended that interactions in cyberspace offer certain freedoms and

opportunities that are not typically available IRL (common online acronym for *in real life*). These freedoms allow for relatively unrestricted forms of speech, behavior, and relationships which inevitably create an online culture different from that of offline reality that impacts adolescents' social and emotional development. Three freedoms Hellenga proposed that are relevant to the ASD population are freedom from external controls, freedom for identity exploration, and freedom of self-presentation.

External Controls

According to Hellenga (2002), cyberspace is a user-controlled communications medium relatively free from a publicly enforced government. Because a gap exists between legal mandate and practical enforceability, adolescents are able to test limits and are prone to various *cyber-delinquent* activities such as media piracy or hacking. Media piracy is generally defined as "the duplication and/or distribution of copyrighted goods [i.e., music, movies, or games] without license" (Chiang & Assane, 2002, p. 145). In a wide-ranging three-year study of media piracy in emerging economies (Karaganis, 2011), no significant stigma was associated with piracy among the six countries examined, despite antipiracy education efforts. Instead, piracy was viewed as part of daily media practices. The lack of enforceable rules gives adolescents a sense of invincibility and entitlement, making them prone to engage in behavior they would not otherwise engage in offline (e.g., illegally downloading music versus stealing a CD from a music store).

Hacking is another example of a cyber-delinquent activity that may be particularly salient in the ASD population. Hellenga (2002) proposed that physical fighting is perhaps the closest parallel to hacking in regular adolescent interactions. This illustration complements the notion that there are there are frequent online expressions (cyberbullying) of offline behavior (bullying),

and hacking is sometimes used as a method to cyberbully (O'Keeffe & Clarke-Pearson, 2011). Hellenga suggested that the average teenager is neither skilled enough nor interested enough in the ability to hack to warrant concern. However, given the intense interest and skillset many individuals with ASD possess with computers and technology, combined with their clinical features, engaging in illegal hacking is a viable concern for this population. In a study examining the Autism-Spectrum Quotient (AQ) scores of female and male hacker conference attendees, Schell and Melnychuk (2011) found that the majority (67%) of attendees had AQ scores in the intermediate range. The AQ inventory is an assessment that measures the degree to which individuals with normal or high intelligence possess known characteristics associated with ASDs, with higher scores indicating stronger ASD predisposition (Schell & Melnychuk, 2011). The AQ inventory questions are divided into five ASD-related domains including social skills, attention switching, attention to detail, communication, and imagination. Responses from hacker conference participants were similar to a typical ASD profile: high overall scores for attention to detail and attention switching (strong focus of attention) and low overall scores in social, communication, and imagination domains. While there is insufficient evidence from this study to imply that the majority of hacker participants are on the autism spectrum, the participants acknowledged that the traits they possessed allowed them to excel in this field. These results are reminiscent of the results from Baron-Cohen et al.'s (1998) study, which suggested a link between characteristics of highly functioning persons with ASDs and the potential to excel in areas such as mathematics, physics, and engineering.

Identity Exploration

Hellenga (2002) stated that the Internet has become a meeting place for a number of different cultural subgroups, political movements, and minority groups (in this case, persons with

disabilities) who would not necessarily have access to individuals similar to themselves offline. Adolescents are able to explore their own identities, find information and support from similar people in online communities, and talk about issues that may be difficult to discuss with parents or peers. The option of remaining anonymous also aids self-disclosure. Jordan (2010) provided two examples of how ASD identity is fostered through online usage: through virtual communities and autism advocacy. Jordan's examination of WrongPlanet, a public online forum for ASD individuals, revealed numerous discussion board topics such as getting to know each other, love and dating, and sophisticated debates about politics, philosophy, and religion to name a few. More importantly, Jordan found that the social support that the WrongPlanet community offers to its members is often the topic of discussion, with one member stating, "There isn't any support group close to me . . . but I survive with friends and talking to you guys online" (p. 222). Virtual communities such as WrongPlanet provide individuals with ASD access to other affected individuals and a safe environment in which to explore their identity as a person with a disability. Jordan also noted how individuals with ASD, formally characterized by isolation, have acquired their voices online through self-advocacy accomplished through posting opinions relative to their disability on forums, creating blogs and websites, and online fundraising.

Self-Presentation

According to Hellenga (2002), the combination of text-only communication and mutual anonymity drives the Internet to be a uniquely different environment compared to its offline counterpart and allows users to present themselves differently than in person. The freedom of self-presentation is tied to identity exploration as these elements allow users to experiment with social selves (e.g., gender, appearances) and take on multiple identities. For instance, textual and anonymous communications allow for story-telling, role-playing, and social interaction through

online personas in online multiuser adventure-type games (e.g., MUDs). In Erikson's (1982) stages of psychosocial development, the main task of adolescents is to develop a stable sense of self. As Hellenga contends, choosing and experiencing a different online persona is a relatively risk-free method for teens to explore themselves, as most behavioral consequences of their online persona can be seen or experienced online without affecting their lives offline. For individuals with ASD, the ability to take on different personas and role play gives them the opportunity to practice social skills and work through situations with which they may otherwise have difficulty in real life.

Technology and the Internet as a Social Communication Tool and its Relevance to ASD

Computer-mediated communication (CMC) can be broadly defined as any communication that occurs through the use of electronic devices (e.g., email, text-messaging). Interpersonal relationships develop through CMC and sometimes surpass face-to-face relationships, even though communicators are physically separated from each other (Walther, 2011). Walther's (1996) hyperpersonal communication theory posits that there are four components of the CMC process that explain this phenomenon: (a) receiver process effects, (b) message sender effects, (c) channel attributes, and (d) feedback effects.

Receiver Process Effects

According to Walther (2011), recipients of CMC tend to exaggerate or inflate their perceptions of the senders. Due to the lack of face-to-face social cues, receivers will fill in the missing information on their own based on initial clues of the senders rather than not form an impression. If the initial clues are favorable, the result is often an idealized view of the senders (Walther, 2011). For the ASD individual, the reduction of visual, auditory, and contextual cues reduces the large amount of stimuli they must process during social engagement, lowering their

anxiety levels. One individual with AS stated, "Chatting online allows me to use the best parts of my social skills; my intellect, and my deep sense of empathy; without having the anxiety of talking to someone face to face. Without the anxiety, my communication is much clearer" (Jordan, 2010, p. 221).

Message Sender Effects

CMC that is text based allows senders to engage in selective self-presentation. In the absence of physical appearance and vocal attributes, senders are able to transmit cues that are favorable only (Walther, 2011). Furthermore, CMC reduces unfavorable face-to-face behaviors. For individuals with ASD who are socially awkward, the online environment masks the interruptions, mismanaged eye contact, and nonverbal dysfluencies that are part of the disorder's clinical features. Walther (2011) also contended that intimacy is generated in the process of disclosing desirable information about oneself.

Channel Attributes

The CMC model's channel attributes focuses on how CMC as a medium contributes to favorable interactions (Walther, 2011). Online communication does not require the immediate response necessary in face-to-face interactions. Asynchronous communication (when communication does not require conversers to participate at the same time) provides control over message construction and allows for interactions to be prepared ahead of time (Valkenburg & Peter, 2009). This characteristic is particularly appealing to the ASD population because their need for control, routine, and predictability is vital to their ability to function daily.

Feedback Effects

Behavioral confirmation, a facet of face-to-face interaction in which a positive response to the behavior of an individual provides confirmation of the behavior, is magnified in CMC.

Walther (2011) contended that CMC can produce an intensified feedback cycle because the enhancements provided by idealization, selective presentation, and channel effects result in selectively sent messages that are selectively perceived, which often leads to positive impression formation (positive feedback).

Social Connectedness and ASD

Social connectedness describes the sense of belonging that results from being part of a social group and also implies the creation of bonding relationships. Numerous research studies have documented enhanced social connectedness as a result of using social media, such as decreased loneliness and increased perception of social support (Shaw & Gant, 2002), increased offline social interaction as a result of online interaction (Jacobsen & Forste, 2011), and significant correlations between social networking sites and offline communication and friendship closeness (Ledbetter et al., 2011). In a study of the social consequences of Internet usage on adolescents, Valkenburg and Peter (2009) identified three literature-confirmed assumptions that explain why Internet usage increases social connectedness and well-being: (a) online communication stimulates online self-disclosure (e.g., Tidwell & Walther, 2002), (b) online self-disclosure enhances relationship quality (e.g., McKenna & Bargh, 2000; Valkenburg & Peter, 2007a), and (c) high-quality relationships promote well-being (e.g., Valkenburg & Peter, 2007b). However, Valkenburg and Peter proposed that these assumptions are contingent on three moderating factors including the type of technology usage, gender, and social anxiety.

Type of Technology and Usage

According to Valkenburg and Peter (2009), the positive effects of online communication for adolescents are only valid (a) when the majority of online communications are with existing friends (e.g., Valkenburg & Peter, 2007a) or (b) when instant messaging (IM), an online chat

program mainly used to communicate with friends, is used (Valkenburg & Peter, 2007b). Other online communication media predominantly used to communicate with strangers (e.g., chatrooms) or engagement in solitary online activities (e.g., web browsing) have neutral or negative effects on adolescents' social connectedness and well-being (Valkenburg & Peter, 2007a). Thus, according to Valkenburg and Peter (2007a), the people adolescents engage with online and the medium through which they communicate determine whether they will experience an increase in social connectedness. However, the gap in the literature regarding the online activity of youth with ASD leaves this assumption unconfirmed for this population. To date, only three studies have been published on social media use among individuals with ASD. Two of these studies broadly examined social media use in the context of screen-based media use among children with ASD (Mazurek, Shattuck, Wagner, & Cooper, 2012; Mazurek & Wenstrup, 2013), and one study provided an in-depth examination of social media use among adults with ASD (Mazurek, 2013).

In Mazurek et al.'s (2012) study, parents of 920 students with ASD aged 13-17 reported that 64% of their children spent their free time using nonsocial media. Only 13% of their children used the computer for the Internet, email, or chat, and reportedly 64% did not use email or chatrooms at all. Similarly, Mazurek and Wenstrup (2013) found that parents of children with ASD aged 8-18 reported that their children spent significantly less time (0.2 hours per day) engaging in social media (email, Facebook, and texting) compared to their typically developing siblings (1 hour per day), and that a great majority of the children with ASD (76% boys, 90% girls) never played online multiplayer games. In contrast, of the 108 adults with ASD recruited for Mazurek's (2013) study, approximately 80% reported using social networking sites and reported "social connection" as the most common reason for using these sites. More

importantly, participants who used social networking sites were more likely to have close friends, and those who reported using these sites for social engagement reported closer friendships. On average, participants reported that a majority of their social network friends (57%) were people they knew offline. Results of Mazurek's study are in line with Valkenburg and Peter's (2009) assumption that positive effects of online communication are dependent on communication with existing friends online. However, the results from Mazurek's study are vastly inconsistent with the findings reported in studies on social media use among children with ASD (Mazurek et al., 2012; Mazurek & Wenstrup, 2013) and necessitate additional research in this area to understand the discrepancy.

Gender

Valkenburg and Peter (2009) contended that online communication with existing friends is more beneficial for adolescent boys than for adolescent girls. A considerable percentage of adolescents self-disclose more online than offline, particularly in cross-sex interactions. In Schouten, Valkenburg, and Peter's (2007) study, 32% of adolescents self-disclosed more online than offline in cross-sex interactions compared to 22% in same-sex interactions. In cross-sex interactions, a higher percentage of adolescent boys (35%) indicated they preferred online to offline self-disclosure compared to adolescent girls (28%). In general, adolescent boys struggle with face-to-face self-disclosure more than adolescent girls (McNelles & Connolly, 1999). This is particularly salient during early and middle adolescent years when they are inhibited in disclosing face-to-face (Valkenburg & Peter, 2009). Considering that ASD predominantly affects males (1 in 54 boys and 1 in 252 girls; Baio, 2012), online communication can be potentially beneficial for this population to stimulate self-disclosure and thus increase social connectedness and well-being (Valkenburg & Peter, 2009).

Social Anxiety

According to Valkenburg and Peter (2009), one hypothesis to explain the relationship between social anxiety and online communication is the social compensation hypothesis. This hypothesis assumes that it is mainly socially anxious adolescents (those who perceive their offline social networks as inadequate) who engage in online communication (to compensate with extensive online social networks). Compared to their socially competent peers, socially anxious adolescents indicated greater preference for online self-disclosure versus offline self-disclosure (Valkenburg & Peter, 2009). Tian (2013) found that online media increased the motivation of socially anxious individuals to make friends, and a positive association was found between social anxiety and the quality of new friendships formed on the Internet. As Mazurek (2013) suggested, the Internet may provide a more comfortable and protected social environment for socially anxious individuals. Considering that some individuals with ASD possess both social impairments and high levels of anxiety, these results are particularly relevant to this population (Mazurek, 2013). Mazurek's findings about social media use among adults with ASD complement the social compensation hypothesis. However, additional research needs to be conducted to see if these results are similar for the ASD adolescent population as well.

Bullying/Cyberbullying and ASD

Bullying

Bullying involves the intentional and repetitive infliction of harm on another individual. It is characterized by an imbalance of power (e.g., physical, social, intellectual) between the aggressor and the victim, with the aggressor possessing greater power than the victim. Individuals involved in bullying are categorized as perpetrators (individuals who commit acts of bullying), victims (recipients of harmful behavior), and perpetrators/victims (those who both

perpetrate bullying and are victimized). Early research on traditional bullying in the 1980s focused on *direct forms* (face-to-face bullying) of bullying including physical (e.g., hitting, kicking, stealing or damaging belongings) and verbal (e.g., taunting, threatening, teasing) acts of aggression (Slonje & Smith, 2008). In the 1990s, researchers expanded the understanding of bullying to include more subtle forms of bullying including *indirect aggression* (acts of aggression through a third party; Björkqvist, Lagerspetz, & Kaukiainen, 1992), *relational aggression* (acts damaging to a person's relationships with others; Grotpeter & Crick, 1996), and *social aggression* (acts damaging to a person's self-esteem and social status; Underwood, 2003). In recent years, the rapid development of technology has changed the manner in which bullying occurs, allowing aggressors to carry out traditional methods of bullying through electronic means via cyberbullying.

Bullying Among Youth With ASD

Individuals with ASD may be uniquely susceptible to bullying. By definition, these individuals struggle to maintain appropriate peer relationships due to their characterized impairments in social and communication skills and rigid behavior. Clinically, these individuals often appear awkward, failing to recognize and respond to social cues that promote fluid social exchanges. They may lack verbal fluency to express themselves appropriately, may appear eccentric, and possess restricted and often unusual interests that dominate conversations. They are typically unyielding with regard to these interests and also in their need for routine and structure. Many individuals with ASD are also overly sensitive to auditory or tactile sensations and present adverse behavioral reactions to them. Because of these qualities, individuals with ASD may be particularly at risk for bullying and victimization as their impairments and demeanor cast them as "perfect victims" (Howlin, 2004, p. 24). Furthermore, their lack of social

competence and normal interactions with peers lead to fewer friendships and quality relationships. Literature on bullying has consistently identified having friendships as a protective factor to bullying (Bollmer, Milich, Harris, & Maras, 2005; Cappadocia, Weiss, & Pepler, 2012; Hodges, Boivin, Vitaro, & Bukowski, 1999), and the lack of such a protective factor has been found to be significantly correlated to bullying involvement among adolescents with ASD (Cappadocia et al., 2012; Van Roekel, Scholte & Didden, 2010).

Prevalence rates. Despite the higher risk of bullying possessed by individuals with ASD, there is relatively little research on bullying experiences among children and adolescents with ASD. Bullying prevalence rates among youth with ASD varied between 7% and 94% for victimization (Cappadocia et al., 2012; Carter, 2009; Little, 2002; Sterzing, Shattuck, Narendorf, Wagner, & Cooper, 2012; Van Roekel et al., 2010), 15% and 46% for perpetration (Little, 2002; Sterzing et al., 2012; Van Roekel et al., 2010), and 9% for victimization/perpetration (Sterzing et al., 2012). It is noted that the participants recruited for the study conducted by Van Roekel et al. (2010) were derived from special education schools that specialized in educating students with ASD, and all students attending these schools had a diagnosis on the autism spectrum. When excluding Van Roekel et al.'s study and only considering bullying experiences in general education settings, victimization rates among youth with ASD are substantially higher, from 46% to 94% (Cappadocia et al., 2012; Carter, 2009; Little, 2002; Sterzing et al., 2012; Zablotsky, Bradshaw, Anderson, & Law, 2013). According to Sterzing et al.'s (2012) study, victimization rates of youth with ASD increased the more classes they had in general education in comparison to those in segregated settings. Similarly, in Zablotsky et al.'s (2013) study, of the 419 victimized participants, 94% was victimized in public school versus 6% in private school, and 89% were victimized in regular education versus 12% in special education. These findings are

significant as most students with ASD are educated in general education settings. According to the U.S. Department of Education, National Center for Education Statistics (NCES; 2013), 91% of 6- to 21-year-old students with autism served under the Individuals with Disabilities Education Act in 2012 received education in a general education classroom in regular schools, with 63% of those students spending at least 40% of their school day in a regular classroom and 43% of those students spending 80% or more of their school day in general education. Since the NCES began collecting data on the number of autistic students in general education settings in 2001, there has been a steady upward trend in the percentage of ASD students spending at least 40% of their school day in a regular classroom, from 47% in 2001 to 63% in 2011. Thus, understanding the bullying experiences of students with ASD is increasingly important.

Consequences. Few researchers have examined the consequences of bullying among children and adolescents with ASD. In Cappadocia et al.'s (2012) study of bullying experiences among youth with ASD, parents reported higher levels of internalizing and externalizing mental health problems among victimized youth with ASD than in youth with ASD who experienced no victimization or low levels of victimization. In Zablotsky et al.'s (2013) study, parents of victimized ASD children reported negative ramifications of bullying including physical injuries (8%) and emotional trauma (70%). Of the children victimized, 14% reported being scared for their own safety. In this study, it was reported that 19% of children were triggered to retaliate, with 41% having an emotional meltdown or outburst which resulted in the victims being reprimanded. Of the 102 children who engaged in victimization, 63% were perpetrators/victims, with 34% of these perpetrators/victims being triggered into retaliation.

Cyberbullying

Cyberbullying can be loosely defined as bullying through technological means. The different cyberbullying definitions in literature encompass various aspects of cyberbullying including the tools used (e.g., computers, cell phones), the medium in which it is delivered (e.g., email, text messages, instant messaging, personal websites), and the deliberate and repeated nature of cyberbullies' harmful behavior against their victims (Belsey, 2004; Hinduja & Patchin 2009). However, the continuous advancement of technology changes the tools used in cyberbullying, altering the medium in which cyberbullying is delivered and outdating such examples. For instance, Belsey (2004) listed "pager text messages" as an example in his definition of cyberbullying, though this example is rarely used in recent research on cyberbullying due to the obsolete nature of this technology. While P. K. Smith et al. (2008) presented a modern list of seven modes used in cyberbullying (phone calls, cell phone text messaging, email, picture/video clip, instant messaging, website, and chatroom), it may be more beneficial to understand the different forms of cyberbullying through the behavior rather than the modes used by the individual. Willard (2007) proposed eight types of cyberbullying behavior that can be classified as direct or indirect forms of cyberbullying:

- Flaming: online fighting using electronic messages with angry language
- Harassment: repeated messages intended to hurt the victim
- Denigration: spreading gossip or rumors to damage a person's reputation or relationships
- Impersonation: sending or posting material under the guise of another person to damage their reputation and relationships
- Outing: sharing private or embarrassing information or images of a victim
- Trickery: tricking a person into revealing embarrassing information then sharing it online

- Exclusion: intentional exclusion from an online group
- Cyberstalking: intense and repeated acts of harassment and denigration enticing fear

The concept of direct and indirect forms of cyberbullying is derived from literature on traditional bullying. In direct forms of aggression, the victim is aware of the aggressor's identity and is the direct target of the bully's aggressive behavior (Dooley, Pyzalski, & Cross, 2009). In the context of cyberbullying, a victim may be blocked or disinvited from online social groups (i.e., exclusion) or may receive repeated offensive emails or text messages (i.e., harassment) (Willard, 2007). Indirect forms of aggression involve acts of aggression directed toward a victim through a third party so that the victim may not be aware of the aggressor's identity. In indirect cyberbullying, gossip or rumors about victims may be spread online (i.e., denigration) or embarrassing information or images may be posted on public forums (e.g., outing; Willard, 2007).

Cyberbullying Among Youth with ASD

Compared to research on ASD and bullying, there is an even greater dearth of information available about the cyberbullying experiences of youth with ASD. To date, only a handful of studies have investigated cyberbullying among children with disabilities. In a study conducted by Didden et al. (2009), 7% of children with intellectual and developmental disability aged 12-19 reported being cyberbullied, 0% reported being cyberbullies, and 3% reported being both victim and cyberbully via the Internet. Four percent of students reported being cyberbullied, 4% reported being cyberbullies, and 5% reported being both victim and cyberbully via cellphone. Similar cyberbullying victimization rates were found by Cappadocia et al. (2012) when they examined bullying experiences of children and youth with ASD. In a sample of 192 parents of children aged 5-21 diagnosed with ASD, 10% of parents reported that their children

had been cyberbullied within the last month. Victimization rates in these two studies are lower in comparison to those in a study conducted by Kowalski and Fedina (2011) of cyberbullying in ADHD and Asperger Syndrome populations. In their study, more than 21% of participants indicated that they had been cyberbullied within the past two months and approximately 6% of participants indicated that they had cyberbullied others within the previous two months. Text messaging reportedly accounted for 20% of the occurrences of cyberbullying.

It is likely that the rate of victimization obtained through self-report in Kowalski and Fedina's (2011) study is a more accurate representation of cyberbullying victimization than in the two aforementioned studies due to setting and self-report. In Didden et al.'s (2009) study, the authors discussed the limitation of recruiting participants from a school for special education students as the characteristics (i.e., low social competence, lower number of friendships) that place many students with disabilities at risk for bullying are normalized when the school population possesses similar characteristics and staff are more capable of managing the needs of special education students in a special education school. In Cappadocia et al.'s (2012) study, information was obtained through parent report and was likely an underestimate of cyberbullying prevalence rates among children with ASD. Literature on cyberbullying suggests that a large percentage of parents are unaware of their children's online activities or cyberbullying experiences, with one study citing that 90% of children and youth do not tell their parents about their experiences (Juvonen & Gross, 2008). In the realm of special education, Didden et al. concluded that almost 70% of students with intellectual and developmental disability reported that their parents are unaware of the type of activities they engage in when using the Internet. Moreover, peer victimization is a personal experience, so parent knowledge and report are

limited. A qualitative study would be more appropriate to give understanding of the personal cyberbullying experiences of ASD youth, but to date there have been no such studies.

Comparing Cyberbullying and Bullying

Some researchers have suggested that cyberbullying is merely an electronic form of bullying that is not distinctly different from traditional bullying (Kowalski, Limber, & Agatston, 2008). Indeed, the core behavioral components and characteristics that define both these forms of bullying are similar: aggressiveness, intentionality, repetitiveness, and the presence of a power imbalance (Dooley et al., 2009). Although the aggressive nature and intentional infliction of harm in bullying and cyberbullying are seen as equal by most definitions, the repetition and power imbalance components in cyberbullying are exacerbated by the use of technology, allowing for easier and greater infliction of harm by perpetrators (Dooley et al., 2009).

In a literature review on cyberbullying and face-to-face bullying, Dooley et al. (2009) cited several studies that provide insight on the differences between bullying and cyberbullying in regard to repetition and power imbalance. Repetition in traditional bullying is understood as multiple acts of aggression toward another individual. In the context of cyberbullying, a single act of aggression could be considered repetitive when it is a continuance of offline bullying (Vandebosch & Van Cleemput, 2008), and especially when a single act of posting or sharing damaging information online results in wide dissemination of that information (Fauman, 2008; Vandebosch & Van Cleemput, 2008). As Kowalski et al. (2008) contended, a single act in cyberbullying may be perpetrated through many people over a long period of time. For instance, the sending of a hate email/text message or posting of an embarrassing picture/video online can be forwarded to and viewed by an unlimited number of peers, resulting in the victim's feeling repeatedly bullied. The victim may also feel repeatedly victimized when re-reading the

messages or viewing the post multiple times. In a study conducted by Slonje and Smith (2008), student participants indicated that cyberbullying with pictures/video clips had a greater negative impact compared to traditional bullying because of the large audience size and identifiable nature of pictures/video clips, resulting in greater social and emotional damage.

In regard to power imbalance, it is more complicated to conceptualize and assess cyberbullying than traditional methods of bullying (Dooley et al., 2009). In traditional bullying, the perpetrators possess certain characteristics or qualities that give them advantage over their victims, such as a stronger physique and stature (physical), greater popularity (social), or superior intellect (cognitive). While advanced technological skills may be advantageous to a cyberbully, most acts of cyberbullying only require a basic skill set (Dooley et al., 2009). What gives cyberbullies power over their victims is a result of technology: their ability to be ubiquitous and anonymous (Dooley et al., 2009; Slonje & Smith, 2008). Unlike traditional bullying in which victims can find a retreat at home after a school day, victims of cyberbullying have no escape, resulting in feelings of powerlessness. As stated by a participant reflecting on the impact of cyberbullying outside of school,

> I believe that cyberbullying most often can be worse for the victim. Partly because the bullies spend so much energy on the bullying, but also because the bullying takes place outside school, in other words when the victim is at home. Home is usually a sanctuary for most people. But the bullies take this sanctuary away from the victims by cyberbullying them. (Slonje & Smith, 2008, p. 152)

Furthermore, the anonymity that the Internet and technology afford allows perpetrators to frustrate and instill fear in their victims. In Vandebosch and Van Cleemput's (2008) qualitative study of cyberbullying perceptions among youth, victims reported increased feelings of

frustration and powerlessness when the identity of the cyberbully was unknown. Dooley et al. (2009) also referred to an interview with a 15-year-old girl in which she described being cyberbullied by receiving a series of harsh anonymous text messages. This participant reported the anonymity of the perpetrator to be more threatening than the content of the messages.

CHAPTER 3

METHODOLOGY

The aim of this study was to address the current lack of research available on youth with ASD and their use of technology using qualitative methods. To date, no qualitative studies of this subject have been conducted with this population. In fact, a large portion of extant research on youth with ASD and technology has been conducted using questionnaires and surveys with parent report as their data source. Considering that an overwhelming majority of both typical (90%; Juvonen & Gross, 2008) and special education youth (70%; Didden et al., 2009) refrain from sharing with their parents their online activities and experiences, it was important to obtain data directly from youth rather than from parents. In addition, topics such as online social connectedness and cyberbullying are personal in nature and require in-depth examinations of these experiences to understand the phenomena. One qualitative framework that was suited for the purposes of this research study was interpretative phenomenological analysis.

Philosophical and Research Framework: Interpretative Phenomenological Analysis

Phenomenology can be described as a discipline that "aims to focus on people's perceptions of the world in which they live and what it means to them; a focus on people's lived experience" (Langdridge, 2007, p. 4). Originally attributed to philosopher Edmund Husserl, as an eidetic method phenomenology focuses on identifying essential components that make a specific phenomenon or experience unique to an individual (Pietkiewicz & Smith, 2012).

Husserl's emphasis on the description of people's lived experiences was expanded on by his follower, Martin Heidegger (1962), into existential philosophy and hermeneutics (Pietkiewicz & Smith, 2012).

Heidegger (1962) was interested in the ontological questions of existence itself as well as using hermeneutics to understand what mediates people's experience (e.g., one's mindset and language), in order to translate their message (Pietkiewicz & Smith, 2012). In a combination of these two philosophers' views, interpretative phenomenological analysis (IPA) as a research framework has roots in both phenomenology and hermeneutics. IPA aims to capture the essence of a person's experience by understanding what it is like "to stand in the shoes of [a] subject, and through interpretative activity make meaning comprehendible by translating it" (Pietkiewicz & Smith, 2012, p. 362). IPA's descriptive and interpretive orientation was suited for this study as its aim is not only to describe and understand the online lived experiences of youth with ASD but also to make meaning from their experiences.

A main focus of IPA research is to give full appreciation to a participant's experience by examining a phenomenon in-depth instead of generating a theory to be generalized. Consequently, research using the IPA framework involves studying a small number of participants in order to enable detailed case-by-case analysis. To achieve this, in-depth semi-structured interviews was the method of choice for data collection because not only did this method allow for real-time dialogue between the researcher and participant, but it also offered space and flexibility for the researcher to investigate original or unexpected issues in more detail with further questioning (Pietkiewicz & Smith, 2012).

Researcher as Instrument

Prensky (2001) first coined the terms digital natives and digital immigrants to describe students who are born into a world of technology in comparison to the rest of the population who were not born into the digital world but have adopted many or most aspects of technology. Prensky contended that both the ubiquitous environment and volume of interaction digital natives have with technology have fundamentally changed the way young people think and process information in comparison to their predecessors. Although they may have adopted most aspects of technology at a young age, Prensky argued that regardless of how well digital immigrants adapt to a technological world, their "accent" (e.g., habits, way of thinking) remains. In my case as the researcher, although I am technologically savvy, I acknowledged the potential biases in understanding and interpreting the viewpoints of digital natives as a digital immigrant, and I avoided misinterpretation through additional clarification of participants' responses during the interview process.

Due to the social difficulties of the target population being studied, participants may have difficulty engaging in reciprocal conversation, which may have potentially hindered the quality of information I obtained from the interviews. However, I am trained to work with children and youth with ASD and am experienced in engaging with this population. During my graduate studies, I conducted assessments and provided therapy to ASD individuals in several contexts including clinics, hospitals, and schools. The majority of my predoctoral internship was completed at an ASD residential treatment facility and diagnostic clinic. I also worked as a therapist for an online applied behavior therapy company during this time. Upon completion of my predoctoral internship, I accepted a position as clinical research coordinator in the autism research unit of a children's hospital. Although I am experienced in working with the ASD

population, participants may have still presented social or communicative limitations in their ability to participate in the interview process. I was flexible in the number of participants recruited for the study in order to ensure the requirement of saturation was met.

During my graduate studies, I have participated in various qualitative research projects by coding and analyzing data. As a clinical research coordinator, I was responsible for coordinating a large qualitative study spanning several years in which the lived experiences of children and youth with ASD and their families were examined. As part of this project, I was involved in collecting, coding, and analyzing assessment and interview data.

Participants

Inclusion Criteria

As Creswell (2005) stated, "the intent [of qualitative research] is not to generalize to a population, but to develop an in-depth exploration of a central phenomenon" (p. 203). This is best attained through purposive sampling methods. In purposive sampling, participants are selected based on criteria (e.g., desired experience, willingness to participate) relevant to the research question in order to gain a richness of information that will increase understanding of the phenomenon being studied (Mack, Woodsong, MacQueen, Guest, & Namey, 2005). Thus, this study employed purposive sampling with the following inclusion criteria:

- Individuals with a diagnosis of AS that meets DSM-IV-TR criteria or an HFA diagnosis (AD with an IQ score over 69): A defining characteristic that differentiates AS from classic AD is the absence of cognitive and language delays. In fact, many individuals with AS have normal or superior intelligence and are verbose in conversation. Similarly, individuals with HFA have an IQ above the extremely low range (> 69) and are verbally higher functioning (Thede & Coolidge, 2007). From a feasibility perspective, these

individuals possess the level of cognitive and language skills necessary to participate in the interview process. From a research perspective, people with these two "higher level" forms of ASD have potential to provide unique insights about the online experience of higher functioning individuals with ASD. In their study of screen-based media among youth with ASD, Mazurek et al. (2012) found that the majority of ASD youth spent their free time engaging in non-social media (e.g., television, video games). However, it was also determined that the participants' levels of cognitive and conversation skills were directly correlated to the likelihood of their engaging in online social media such as email or chatrooms, suggesting that higher-functioning ASD individuals engage in social media in a different way than persons with classic AD. Considering that only 20% of individuals on the autism spectrum are diagnosed with classic AD and that the majority fall in the milder ranges of the spectrum, research on these higher functioning subtypes will be important in addressing the needs of the majority of individuals with ASD. Additionally, AS and HFA are different from other forms of autism because while individuals with these diagnoses are characterized by social difficulties like other persons with ASDs, they differ as they are socially motivated to be with others and desire friendships despite their challenges. The use of participants from AS and HFA populations provided a unique perspective of their online experience as they may approach the Internet differently due to their defining clinical characteristics.

- Adolescents between the ages of 12 and 18: According to Erikson's (1982) stages of psychosocial development, adolescents are defined by the fifth psychosocial stage: identity vs. confusion. In this stage, adolescents explore their independence and personal identity and develop a sense of self. Of great importance in this stage are their social

relationships with their peers. Because self-exploration and relationships are hallmarks of this stage, this age range was chosen for this study to investigate how Internet usage influences participants' daily functioning in these areas.

- Sufficient online experience: Because the purpose of this study was to examine the online experiences of youth with ASD, participants must have had the opportunity to use the Internet to have online experience. Since the amount of time spent on the Internet will vary depending on the activity, the focus was placed on the number of times the participant has accessed the Internet rather than the amount of time spent on the Internet. For this study, participants must typically have accessed the Internet at least three times a week.
- Access to the Internet and hardware/software for Skype: Skype is a free voice over the Internet protocol (VoIP) system that allows users to communicate with other users via audio calls, video calls, or instant messaging. For this study, participants completed an interview through Skype's video call feature. Skype is increasingly being used to conduct qualitative research interviews because of the many advantages it offers such as low expense, easy availability and ubiquity, usability, immediacy of social cues, and richness of content (Kimbler, Moore, Schladen, Sowers, & Snyder, 2013). Berg (2007) contended that synchronous environments (online media that provide real-time back-and-forth exchange of questions and answers), while different in some respects, are definitely similar to face-to-face interviews and especially useful for unstructured or semi-structured interviews. Sullivan (2013) further contended that online communication programs like Skype mimic face-to-face interactions, including the presentation of self in an authentic way.

Sample Size

Although numerous factors can affect the sample size in qualitative studies, Mason (2010) stated that qualitative samples should be large enough to uncover a majority of important perceptions but not so large that the data become repetitive and superfluous. Morse (1994) postulated that at least 6 participants are ideal for phenomenological studies, and Creswell (1998) suggested a range from 5 to 25 participants. Mason examined sample size and saturation in 560 PhD studies using qualitative interviews and determined that all the phenomenological studies identified met Morse's criteria of at least 6 participants, with 68% of the phenomenological studies meeting Creswell's suggested range of 5 to 25 participants. Following these guidelines, a sample size of 10 to 12 participants was recruited for this study. Because of the challenges in social interaction, communication, and restricted/stereotyped behavior of the population being interviewed, the quality of interviews varied. Additional participants were recruited until saturation appeared to be met.

Data Collection

Recruitment

Participants were initially recruited through advertisements (see Appendix A) at an ASD clinic and the ASD department of a children's hospital. Participants were also recruited through additional modes of purposive sampling including *referral* (from various kinds of gatekeepers), *opportunity* (as a result of one's own contacts), and *snowball sampling* (from participant referral; J. A. Smith, Flowers, & Larkin, 2009). These forms of sampling give researchers access to potential participants who meet the inclusion criterion. Access to participants who met all of the inclusion criteria is vital in granting researchers access to particular perspectives on the phenomena being studied (J. A. Smith et al., 2009).

Informed Consent

After participants were identified, I provided an overview of the study to the participants and their parents/guardians by phone. I went through the informed consent process and explained the purpose of the study, procedures, potential risk or discomforts, potential benefits to participants and society, confidentiality, and voluntary nature of participation or withdrawal in order to identify individuals who wish to be involved in the research study. A hard copy or soft copy of this information was provided. If the participants and their parents or guardians decided to proceed with the study, a consent form was completed by the parents or guardians and an assent form was completed by the participants given their minor status (under 18 years of age); these were mailed back to me. Assent from participants not only respects the youth as developing autonomous individuals but also demonstrates their willingness to participate in the research study. Their willingness to participate increases the probability of obtaining rich data. A copy of the consent and assent forms can be found in Appendices B and C.

Semi-Structured Interviews

Considering that the main goal of IPA research is to investigate how individuals make sense of their experiences, researchers must first be able to elicit rich and detailed accounts of the experiences and phenomena being studied. The most popular method to achieve this in IPA research is by conducting in-depth, semi-structured interviews. After obtaining written consent and assent from the participant and his or her guardian, a semi-structured Skype interview was scheduled with the participant at his or her convenience. With semi-structured interviews, an interview schedule is prepared beforehand in order to facilitate, but not dictate, the interview. The interview began with a series of background, demographic, and computer and Internet usage questions. While these initial questions were straightforward, they were meant to build rapport

and provide me with a modest understanding of the participant as a person and his or her relation to the phenomenon being studied. As suggested by J. A. Smith and Osborn (2008), the beginning of the interview should focus on helping the participants feel at ease before more substantive areas of the schedule are introduced. The latter portion of the schedule consisted of more in-depth questions regarding the participants' experience and perceptions of their online experience. Field notes about body language, affect, and general impressions were also taken during the interview. A copy of the interview schedule can be found in Appendix D.

Recording and Transcription

As J. A. Smith and Osborn (2008) recommended, in order to avoid missing nuances and to maintain rapport, recordings were necessary to conduct the form of interviewing required for IPA. After each interview, interviews were immediately transcribed verbatim by me. The transcripts were then used as part of the data analysis process.

Data Analysis

According to Pietkiewicz and Smith (2012), data analysis under the IPA framework should aim to give evidence of the participants' understanding of the studied phenomenon while also documenting the researcher's sense making. This is accomplished by moving between emic (insider's view of reality) and etic (external social scientific perspective on reality) perspectives when looking at the data. Moving between these two perspectives allows for the application of psychological theories, which is helpful in illuminating the understanding of research questions but also protects the researcher from psychological reductionism. To facilitate this balance, Pietkiewicz and Smith proposed using the following steps to analyze qualitative data using the IPA method:

1. Reading and making notes: The first stage of the IPA process is a complete immersion into the research data in order to "step into the participants' shoes as far as possible" (Pietkiewicz & Smith, 2012, p. 366). This involves reading transcripts in detail and listening to video recordings multiple times as each re-visitation of the data has potential to provide new insights (Pietkiewicz & Smith, 2012; J. A. Smith & Osborn, 2008). Notes are made during this time about the interview experience or any other potentially significant thoughts or comments. Following these guidelines, my initial step in data analysis was to involve repeated listening to and reading of interviews conducted with the participants. While reading, notes were made on areas such as content (e.g., subject of discussion), use of language (e.g., metaphors, symbols, repetitions), context, preliminary interpretations, and personal reflexivity (e.g., how personal characteristics of the researcher may have affected rapport with interviewee). J. A. Smith and Osborn (2008) also suggested focusing on similarities, differences, echoes, amplifications, and contradictions in the participant's interview when making notes.
2. Looking for emergent themes: After notes were made throughout the entire transcript, the second stage of IPA involves returning to the beginning of the transcript to document emerging themes (J. A. Smith & Osborn, 2008). At this stage, Pietkiewicz and Smith (2012) stated that the researcher should place emphasis on the notes taken rather than the transcript. Thus, I generated themes by transforming the initial notes into concise phrases that aimed to capture the essence of the text and also moved the responses to a higher level of abstraction to invoke more psychological conceptualization.
3. Connecting the themes: The third stage of IPA involves finding connections between emerging themes and grouping them according to conceptual similarities in a process

called clustering. A descriptive label is then given to each cluster of themes. I achieved this by beginning with an initial list of themes presented in the order in which they appeared in the transcript, followed by more analytical or theoretical ordering to help make sense of the connections between emerging themes. J. A. Smith and Osborn (2008) noted the importance of checking the transcript when clustering themes to ensure the connections are consistent with the actual words of the participants. In this iterative (reflexive) form of analysis, the researcher not only relies on his or her own interpretative resources but also must constantly check his or her sense-making against the words of the participants (J. A. Smith & Osborn, 2008). Patton (2002) provided three categories of reflexive questions for triangulated reflexive inquiry which I followed throughout the research process, particularly during analysis:

a. Self-reflexivity (e.g., What do I know? How do I know what I know?)
b. Reflexivity about those studied (e.g., How do those studied know what they know?)
c. Reflexivity about the audience (e.g., How do those who receive my findings make sense of what I give them?; Patton, 2002, p. 495).

4. Continuation of analysis: The analysis process documented above was applied to subsequent participant interviews. J. A. Smith and Osborn (2008) stated that researchers can use themes from previously analyzed interviews to help orient subsequent analysis or analyze each interview from scratch. For this study, I used themes from previous interviews as a framework for subsequent interviews but acknowledged the importance of highlighting convergences and divergences in the data and recognizing the ways that participants' perspectives were not only similar but also different. Once each transcript

was analyzed using IPA, a final list of superordinate themes was constructed from all the interviews.

Confidentiality

To maintain participant confidentiality, pseudonyms were created for each participant for records and transcripts. Original paperwork with identifying participant information was kept in a locked filing cabinet. Hard copies of research data were also kept in a locked filing cabinet, separate from identifying information. All electronic research data were saved on a password-protected, encrypted external hard-drive, and a password is required to open each document or video file. Research data were only reviewed by me and members of my dissertation committee.

Trustworthiness

Rigor in research is a means to achieve credibility and allows the reader to assess the trustworthiness of the research (Krefting, 1990; Martensson & Martensson, 2007). In order to ensure the quality of findings, Krefting (1990) advocated the usage of Guba's (1981) model of trustworthiness to establish rigor in qualitative research. This research study demonstrated rigor through the identification of Guba's four aspects of trustworthiness: credibility, transferability, dependability, and confirmability.

Credibility

Krefting (1990) contended that truth value in qualitative research is obtained from the "discovery of human experiences as they are lived and perceived by the informants" (p. 215). In order to ensure that I captured the essence of the phenomenon being studied, I spent an extended amount of time with the participants to conduct in-depth, semi-structured interviews. I also spent time in the beginning of the interview to establish a high degree of rapport to allow participants to become familiar with me because increased rapport encourages participants to volunteer

different and often more sensitive information (Krefting, 1990). While I am trained in working with the ASD population, I acknowledged that the social difficulties this population presents may have impacted the quality of interviews conducted and thus I was flexible in recruiting additional participants to ensure saturation was met. Member checks with the participants were also employed to confirm I understood the viewpoints of the participants accurately. This was done through the reframing of questions and clarification of responses during the interview. Copies of the interview transcripts were also provided to the participants afterward to facilitate discussion on the accuracy of the transcription. Finally, I was also in constant consultation and debriefing with my committee members to ensure that personal biases were bracketed.

Transferability

Krefting (1990) argued if the findings of the research are intended to be descriptive, representing one's life perspective (as in this phenomenological study), the applicability criterion may not be relevant. However, Krefting stated that detailed descriptions and sufficient information must be provided to allow judgments of transferability to be made by the reader. Thus, dense descriptions of the research data were provided. Krefting also noted that transferability of data is dependent on the representativeness of the participants. However, Pietkiewicz and Smith (2012) proposed it is inappropriate to think in terms of representative sampling in IPA research because the aim of IPA research is to have a fairly homogeneous sample for whom the research questions have relevance and personal significance. Furthermore, as J. A. Smith et al. (2009) contended, participants in IPA research "'represent' a perspective, rather than a population" (p. 49). As such, participants were recruited purposively to ensure they had certain characteristics and experience with the Internet in order for them to provide their insight on this topic.

Dependability

According to Guba (1981), the dependability criterion relates to the consistency of the research study and results. In order to facilitate replication, dense descriptions of the data gathering, analysis, and interpretation were provided. However, Krefting (1990) stated that variability is expected in the unstructured and often spontaneous nature of qualitative research, thus emphasis is placed on the importance of "trackable variability" (variability that can be explained by identified sources) to demonstrate dependability (p. 216). I detailed these variations in my findings. Guba also suggested conducting a code-recode procedure on research data to increase dependability of the results. Thus, after the initial coding of a section of data, the researcher waited two weeks and returned to recode the same data to compare results to ensure the consistency of data interpretation.

Confirmability

Guba (1981) argued that neutrality in qualitative research is based on data and interpretational confirmability instead of researcher objectivity. Thus, the researcher must ensure that the results of the experiences are derived from the participants rather the characteristics or preferences of the researcher. To address this, I reflected on my position as an instrument to the research study and also addressed the methodology shortcomings and potential effects in the limitations section of this paper.

Limitations

Lester (1999) contended that phenomenological research must be tentative about suggesting the extent of its relation to the target population. Small sample size and purposive sampling limit the representativeness of the participants; thus, a limitation of phenomenological studies is the lack of generalizability. However, phenomenological research is robust in

capturing the essence of a lived experience and identifying the presence of factors and their effects in individual cases. Another potential limitation of the study was researcher bias, as only one researcher was involved in the data collection and analysis of data. Finally, given the social and communicative difficulties of ASD individuals, participants may have had difficulty conveying their thoughts to the researcher, which may have limited the validity of the data.

CHAPTER 4

RESULTS

This chapter is a presentation of the stories and experiences of the 10 participants interviewed for this study. The interview questions were designed to provide an in-depth understanding of the online experiences of youth on the autism spectrum. As per the inclusion criteria for this study, each participant was between 12 to 18 years of age, with a diagnosis of Asperger's disorder, and each participant accessed the internet at least three times per week. Although the participants shared these similarities, their unique characteristics (i.e., degree of ASD symptomology) and level of ICT usage likely influenced the data gathered and the types of experiences examined in this study. Thus, this chapter is divided into two sections: participants and results. Participant demographics and a brief synopsis of each participant are included to provide context for the responses of the participants. The results are presented within four themes and 14 subthemes: (a) Benefits of Internet Usage (Social, Emotional, Educational, and Interests); (b) Bringing People Closer (Reducing the Miles in Between, Accessibility to People, and Easier Communication); (c) Negative Social Interactions (Negativity, Trolling, and Cyberbullying); and (d) Combating Negative Social Interactions (Prevention, Avoid/Ignore/Leave, Support of Peers, Seek Help from Adults/Authority Figures).

Participants

Participant Demographics

Interviews were conducted during the summer holidays when participants were in transition in between school grade levels. The grade levels reported in Table 3 reflect participants' most recently completed grade. Of the 10 participants interviewed, eight were in junior high (Grades 6-8) and two were in high school (grades G-12). Seven participants attended public school, two participants attended online school, and one participant attended private school. Seven boys and three girls committed to be part of this study. Pseudonyms are used in place of participants' actual names.

Table 3

Participant Demographics

Participant	Gender	Ethnicity	Age	Grade	School
1 Elizabeth	Female	Caucasian	14	8	Online
2 Nathan	Male	Caucasian	18	12	Public
3 Jordan	Male	Caucasian	13	7	Public
4 Kory	Male	Biracial	13	7	Public
5 Neil	Male	Caucasian	12	7	Online
6 Matt	Male	Caucasian	14	8	Public
7 Betty	Female	Caucasian	12	7	Private
8 James	Male	African-American	14	8	Public
9 Mandy	Female	Caucasian	18	12	Public
10 Roger	Male	Caucasian	12	7	Public

Participant Computer and Internet Usage

Almost all participants (*n* = 9) in this study considered themselves "above average" (able to solve or find ways to solve problems with the computer or Internet) when asked how "tech savvy" they were. Moreover, some participants (*n* = 4) shared that their parents sought computer and Internet help from them. A majority of the participants (*n* = 6) reported no parental supervision regarding computer and Internet usage although a few participants (*n* = 4) indicated parental supervision was enforced when they were younger. Some participants (*n* = 3) reported light supervision such as site restrictions (i.e., adult websites) or time restrictions on computer games during weekdays. On average, participants from this study used the computer 29 hours a week and the Internet 25 hours a week. All participants started using the computer and the Internet at a relatively young age, with an average start age of 6.9 years for the computer and 8.5 for the Internet. A summary of this information is presented in Table 4 below.

Table 4

Participant Computer and Internet Usage

Participant	Computer Start Age	Internet Start Age	Computer Hours/Week	Internet Hours/Week	Parental Supervision
#1 Elizabeth	7.5	10.5	4.5	21	None
#2 Nathan	10.5	13	70	30	None*
#3 Jordan	7	7	10.5	3.5	Website Restrictions
#4 Kory	5	6	2	7	None
#5 Neil	6	6	70	42	None*
#6 Matt	4	5	42	35	None*
#7 Betty	8.5	8.5	8.5	21	Check Web History
#8 James	10	10	5	20	Website & Time Restrictions
#9 Mandy	9.5	9.5	31.5	31.5	None*
#10 Roger	1	9	42	42	Activity & Time Restrictions

*parental supervision when younger

Participant Computer and Internet Activities

Participants in this study reported accessing the Internet primarily from home (n = 10) and school (n = 5) and reported using a variety of devices including desktop or laptop computers (n = 10), tablets (n = 3), cell phones (n = 5), video game consoles (n = 3), and e-readers (n = 2) to access the Internet. Participants also reported using the computer and Internet for a variety of work and leisure activities (see Table 5). It is interesting to note that there were recurring statements from male participants (n = 5) which suggested that gaming was a strong interest that

influenced how these participants engaged in other Internet activities. For instance, male participants reported researching, downloading, and purchasing games online; watching online videos to learn and improve gaming skills; and chatting with other players during multi-player games online. These statements regarding gaming were not reported by the female participants in this study.

Table 5

Participant Computer and Internet Activities

Computer Activities	*n*	Internet Activities	*n*
Accessories Programs (i.e., calculator)	1	Applications (i.e., Steam)	4
Applications (i.e., MS Office)	6	Blogging	3
File Management	1	Browsing	9
Gaming	7	Chatting	6
		Downloading/Uploading	4
		Emailing	2
		Gaming	8
		Instant Messaging	1
		Music/Video/Podcasts	7
		Research	4
		Schooling	3
		Shopping	3
		Social Networking Websites	6
		Virtual Worlds	1
		Website Development	2

Participant Backgrounds

Participant 1: Elizabeth

Elizabeth is a 14-year-old Caucasian girl with Asperger's disorder. She presented as a friendly, bright, and mature girl for her age. She is currently enrolled in an online school designed as an alternative to traditional educational settings and will be starting high school this fall. Elizabeth previously attended public school up until fourth grade. At that time, she began having difficulty learning in a public school setting due to challenges associated with Asperger's disorder. Her doctor suggested home school as an alternative to public school and she experimented with that option for one year. After that year, Elizabeth learned of the online school she currently attends, and she has been attending the online school for the past three or four years. She reported being very satisfied with the online school as it gave her the structure many youth with ASD require but also offered the freedom from a confined learning environment a public school setting sometimes imposes (i.e., sitting through long lessons). Elizabeth is an avid reader and writer and enjoys painting in her spare time. She reported having high levels of social anxiety but has been very proactive in using the Internet to connect with other youth. She has started several online projects designed to help teenagers and young adults find emotional support from similar peers as well as mental health advice. Her latest project garnered the attention of her local newspaper, and both she and the project were featured in a recent issue of the newspaper.

Participant 2: Nathan

Nathan is an 18-year-old Caucasian man with Asperger's disorder. Nathan presented as a matter-of-fact young man who was thoughtful in his responses. Nathan's mother indicated she was pleasantly surprised he was interested in participating in the study as he often has high levels

of anxiety. Nathan recently graduated from a public high school. He reported no immediate plans after graduation but shared that he would like eventually to pursue a career involving computers. Prior to attending the public school Nathan graduated from, he was enrolled in a private school. However, the limited course offerings at the private school prompted Nathan to transfer to a public school where a greater variety of classes was offered. Nathan stated that public school was a "better fit" because courses such as Tech Shop offered a different pace in learning and teaching style which decreased the amount of stress he experienced compared to the traditional course offerings in private school. Nathan reported being comfortable spending time at home. He does not "crave" going outside or "going on adventures" but will go out when necessary. He recently became interested in horseback riding but still spends most of his spare time playing video games on his computer. He also enjoys listening to music and podcasts and often multi-tasks these activities.

Participant 3: Jordan

Jordan is a 13-year-old Caucasian boy with Asperger's disorder. He presented as a likeable, mature, yet anxious boy, often laughing nervously when he responded to questions. Jordan's biological parents are divorced and he currently lives with his biological father and stepmother. Many of his family members from his father's original and new marriage reside outside of his state. Jordan shared several stories of how the Internet played a role in both maintaining contact with original family members and meeting new family members for the first time online. Jordan described himself as "creative," citing his talents in writing and music. He reportedly plays the trumpet, writes his own music, and raps. He attends public school and enjoys History, PE, and spending time with his friends at school. He also enjoys playing video games and sports.

Participant 4: Kory

Kory is a 13-year-old biracial boy with Asperger's disorder. His mother is Japanese and his father is Indian. He is currently enrolled in a public school in a school district that specializes in autism. Kory's father stated that they moved from a different province in order to be able to access services at their current school district. Overall, Kory presented as a rambunctious and playful boy whose demeanor was young for his age. He described himself as an anxious person and shared that he enjoys listening to music and reading books in his spare time. He reportedly uses the Internet everyday but is limited in his usage. He mostly accesses the Internet through his tablet before he goes to bed.

Participant 5: Neil

Neil is a 12-year-old Caucasian boy with Asperger's disorder. He presented as a loquacious, smart, and curious boy who demonstrated a wealth of knowledge about computers and the Internet. He is self-taught and has mastered a variety of advanced computer programs such as Acoustica and Mixcraft. Neil stated that he was very interested in technology and highly enjoys recording music, making videos, and maintaining his YouTube channel. He also expressed interest in playing video games, chatting with friends, and browsing online. His passion for technology was evident throughout the interview and at times it was necessary to redirect Neil back to the questions at hand as he would get carried away discussing his personal technological interests.

Neil is currently enrolled in the same online school as Elizabeth but no there was no evidence to suggest they knew each other. Similar to what Elizabeth reported, Neil found that his ASD symptoms affected his ability to learn in a public school setting. Thus, he opted for an online school as an alternative learning environment. Additionally, Neil stated that he was

restricted to taking core courses in public school and was not able attend "fun" classes (i.e., Art) with his classmates due to being pulled out for additional support during those times. Neil reported that the structure of his online school has allowed him time to process information and learn by using his strengths (i.e., reading). He also happily reported being enrolled in "fun" classes such as a special writing class and Spanish, which would not have been available to him at his previous public school.

Participant 6: Matt

Matt is 14-year-old Caucasian boy with Asperger's disorder. His mother shared that Matt was excited to participate and talk about one of his favorite things--computers. Matt presented as a pleasant but succinct young man who required prompting from the researcher in order to expand on his responses to interview questions. He attends public school and will be starting high school this fall. He described himself as a shy and anxious person and wishes he was better at communicating with others. Despite being shy and anxious, Matt has been told by friends that he is more outgoing and loud online than he is in person. Matt loves playing video games and likes the company of friends, so he enjoys playing multi-player games with his friends. He also enjoys science and playing musical instruments (clarinet and guitar).

Participant 7: Betty

Betty is a 12-year-old Caucasian girl with Asperger's disorder. She presented as an easy-going, genuine, and mature girl. Betty was enrolled in a private school and her parents are divorced. She spends time living at both her parents' homes. She described herself as "unique," in the sense that she is not like typical girls. She enjoys "getting her hands dirty" with activities like fishing and considers herself as somewhat of a "tomboy." She also enjoys swimming and participates in swimming for charity. Betty believes it is important to "be herself" and is not

afraid to do so. However, she shared that she wished she was better at meeting new people and struggles with walking up to new people to introduce herself. Betty has her share of success and difficulties with peers and, at her young age, has already experienced bullying and cyberbullying from others.

Participant 8: James

James is a 14-year-old African-American boy with Asperger's disorder. He presented as a kind and naïve boy. Some echolalia was noted during the interview and some rephrasing of the questions was necessary to ensure James was not simply repeating part of the questions as his responses. James shared difficulties in school with regards to social interaction in that he has had been in trouble for speaking inappropriately to peers and teachers. Emotional regulation was also an area James had some difficulty with (i.e., overexcitement, impatience). Despite these challenges, James is a confident boy and he described himself as an "awesome person." He enjoys activities that involve movement such as swimming, exercising, and stretching, and he wishes he could be better at gymnastics.

Participant 9: Mandy

Mandy is an 18-year-old Caucasian girl with Asperger's disorder. She recently graduated from a public high school and currently spends much of her time working at a factory. Mandy presented as an expressive and down to earth young lady who enjoyed conversing with the interviewer about her opinions about the Internet and related technologies. She described herself as an easy-going, content person and believes that for the most part, she presents as a typical adolescent even though she is on the spectrum. She stated that the Internet is both her social outlet and creative outlet. Mandy is passionate about the arts and enjoys drawing and painting both by hand and with the computer. She uses the Internet as a forum to display and

share her artwork and also as way to for her to improve on her art skills through tutorials and feedback.

Participant 10: Roger

Roger is a 12-year-old Caucasian boy with Asperger's disorder. He presented as a happy, outgoing, and talkative boy who displayed slightly exaggerated facial expressions when speaking. He was at times literal, and he sometimes required rephrasing of questions to understand what was being asked. Roger attends a public school and brings a netbook to school. He shared that the netbook greatly impacted his ability to complete his work and keep up with the rest of the class as he is a slow writer and has difficulties printing neatly. He enjoys attending karate class, riding his bike, and playing computer and video games. Roger has two close friends who come to his house every day and they enjoy playing multiplayer games together. It is important to note that Roger's family does not have unlimited Internet service; therefore, his parents restrict his Internet activities in order to avoid going over the monthly bandwidth (i.e., no YouTube videos).

Results

Benefits of Internet Usage

Social. The most prominent benefit that was reiterated consistently across many participant interviews (n = 9) was the social benefits the participants experienced from Internet usage. Social deficits are a hallmark of ASD, and youth on the spectrum often struggle with making and maintaining friendships. As stated by Neil, "It's hard for me to make friends in real life so badly." Roger shared that he had a couple of closer friends at school, but met many while gaming. When asked what the Internet meant to him, he stated,

> It means quite a bit to me, because I got like online friends on there. Congregate [online gaming application] comes with a gaming feature and inside the game you can chat with people in the chat room. That's how I met them. Others, I met on Minecraft through their servers, through multiplayer games.

For Elizabeth, the Internet was not only a means to build friendships, but it also served as a teaching tool to practice and develop her social skills. She described it as her "social lifeline" and shared,

> I think that it helps a lot with me being social, because I haven't made many friends outside of the Internet. I've met a couple through my online school but most of the people I meet are through the Internet. I think I'd have a lot less friends than I do right now. I wouldn't be very good at being social, like it's even sort of taught me people skills in a way, because of all the people I speak to through it. Like I'm better at maintaining conversations than before I started using the Internet a lot.

Several participants (n = 3) reported on how the Internet helped them develop deeper friendships that went beyond just an online friendship. Elizabeth and Mandy shared that they have several real life friends which resulted from meeting users online. Elizabeth shared that she and her now best friend both signed up online for a site where users write novels. They found out that they lived in the same town, a mile apart, so they decided to meet to write their novels together. Elizabeth shared how the Internet and computer helped them overcome their initial social anxiety. She stated, "She [Elizabeth's best friend] has Asperger's too, high-functioning autism. So we both just sat there and typed to each other and we didn't talk for the three hours we met. It wasn't until like the second or third time we met up that we actually spoke."

Similarly, Mandy shared how her online relationships have become offline relationships, resulting in many visits from her out-of-town friends. She shared,

> Like in July and August I got to meet a couple of my friends so like one friend that was on a road trip to New York, she stopped by where I lived and we got to see each other and hang out and that was a lot of fun. I have a friend from San Francisco who drove up here and I got to hang out with her before I went to work one day and that was good.

Jordan also shared how the Internet helped him maintain his friendships by being a source of information to help stay current with his friends. When asked to elaborate on how the Internet helps him fit in, he stated, "I know more stuff so when my friends ask me things, I know what they're talking about and it leads to better relationships with my friends." These examples demonstrate how the Internet helped participants meet and maintain new and existing relationships.

Emotional. A majority of the participants (n = 8) expressed positive feelings (i.e., confidence, accomplishment, happiness, raised self-esteem), emotional support, and improved internalizing behaviors as a result of engaging in various activities online. Several participants (n = 4) shared that their online experiences have changed their self-perception and increased their feelings of confidence and self-worth. Elizabeth is a socially anxious girl with reported difficulties with meeting people and making new friends. Knowing this about herself, she turned to the Internet as an alternative method for building relationships and has been proactive in seeking out new relationships through the creation of various online projects such as a mental health advice website for adolescents. Her projects have been well received by Internet users and Elizabeth reported positive reviews of her experience, "I get tons of messages a day of people saying that I've helped them and people telling me that I'm great and stuff like that. So

those messages tend to filter into my self-perception. It's cool because all these people telling me that I'm so cool, that I start thinking that I'm so cool." Mandy also reported increased levels of confidence after turning to the Internet to seek help and critique from online users about her artwork. She stated, "Before I didn't have any confidence in what I did, like my hobbies and stuff, but then I got a lot of help and positive feedback [online], and now it's made me really . . . like helped me become content with myself." She went on to share that was not able to find anyone offline to help her with her art skills, and so the Internet was crucial in her development of skills and her confidence in this area. Conversely, Nathan experienced feelings of accomplishment from being able to help others online after he received help from others. He stated, "It feels really nice to be able to help somebody who has a problem and that's something that you can solve. I can teach somebody else that has the same problem because they taught me."

A few participants (n = 3) also reported on how the Internet is a place to seek emotional support from peers. Elizabeth shared that she receives a lot of her emotional support from users online or peers she has met online. When explaining how her online life has affected her offline life, Elizabeth stated,

> I have a lot of support online and stuff like that. Like I had quite a few people I texted beforehand and after [my interview with the newspaper]. Even for this interview, I talked to three people about it and they were like, 'Okay, good luck, text me when it's over.' So to be able to have people to talk about your worries and stuff like that [was a result of online life].

Nathan also shared positive experiences with seeking for help and support online. He stated,

"If you've got a problem and seek help, you will just get all sorts of helpful people and they're nice and considerate and they're giving you suggestions." He continued on to say, "It's nice to find that group of people that you know are nice, like that kid in your class you go to ask for help because he knows how to help and he's also nice."

Analysis of interviews revealed that some participants (n = 2) experienced decreased levels of internalizing behaviors commonly associated with ASD as a result of using the Internet. Many individuals with ASD experience anxiety and stress from attending school due to the long day and at times unpredictable routine. Both Nathan and Matt reported that knowing they have access to the computer and Internet after school to unwind allowed them to cope through the school day as it gave them something to look forward to after school. Matt stated, "It actually helps with anxiety at times. Say after like a long day at school, I just go online and play a couple games. It makes me feel calmer." Nathan reported the same decreased feelings of anxiety after school when using the Internet, "So if I've had a bad day at school, I can just go on and forget, and I can do fun stuff, and create stuff." He went on to say,

> It's like a good stress release, so that, you know, school can be a little more manageable. It's made school a little more tolerable in the sense that I can relax easier or more easy. It is a release that is there and probably in the long run does improve my school experience.

Likewise, Matt also commented on how his school experience is improved by being able to use the computer and Internet to lower his anxiety and frustrations from school. He stated, "I think it actually improves my school experience because I can cool off and I won't have to really bottle it up. I could just relieve stress with it."

Educational. Many participants in this study shared how technology and the Internet have impacted their formal and informal learning (n = 6). Two participants were enrolled in an

online school at the time of the interview and one participant was considering online school. Both Elizabeth and Neil's diagnoses of Asperger's disorder affected their learning in a public school setting which prompted them to consider alternative methods of schooling. Elizabeth performed better at the online school because it was not a confined learning environment. Long durations of instructions are typically difficult for students on the spectrum. She stated, "I didn't have to sit in like a classroom with kids and have like the teacher explain all these questions." In comparison, the online school offered Elizabeth flexibility in her learning pace. She shared, "I would do like ten lessons a day and then ten lessons of another thing the next day, because as long as you have your school work done by the end of the year they don't care how you did it." Neil also shared how the flexibility in learning pace helped with his processing, as many youth with ASD struggle with processing time and executive functioning. When asked why he decided to enroll in online school, he stated,

> Because back in public school I never got the chance to process and take my time on work. People were always like, "Hurry up! You have to this long to do this or that." And it was so frustrating. But with online school I can take my time, I get my own time to write, to type . . . so I just take my time. I go like okay, this is not sounding right so I'm going to backspace this and rewrite this.

Neil also explained that going to online school provided him with the opportunity to access a wider range of classes he did not have access to when attending public school. He shared that he was only allowed to take special education classes and core curriculum classes like Reading and Math because there was not enough time in a day for him to take other classes like Art with his classmates. However with online school, he was able to take Spanish and special writing classes, which were considered pastimes for Neil. He shared, "I wanted to explore more and get off the

basics so I could explore on my own and see what's also good for me," and the online school allowed him to do that.

Participants also looked to the Internet as a way to learn independently and develop skills (n = 4). Among the participants, "research" and "browsing" were cited as the top activities participants frequently engaged in online. Several participants cited Wikipedia as one of their favorite websites because "it's really interesting to find out about many things and how things work." Nathan shared how the Internet was a great source for "checking something out…the kind of stuff you would need to pull out an encyclopedia for." The Internet also cultivates curiosity in learning. Matt shared, "I use the Internet for information, about things I'm not sure of, and things I want to know more about. Jordan similarly stated that the Internet has "definitely expanded my horizons" and he is able to "find out everything [he] wants to know" online.

As aptly stated by Mandy, the Internet is a "huge goldmine" for resources. As a self-taught artist, Mandy stated that it only takes "ten seconds to look up a tutorial on Google" and that there are "so many reference photos online to help with training or observational drawing." Similarly, Neil has mastered various computer programs and applications by learning about them on the Internet independently. He stated,

> People don't introduce me to technology, I introduce myself to it. There's like so many programs out there, like applications, video games and stuff, and music making programs and video editors. Those, I learned by looking them up, by finding out what to do online.

A few participants (n = 3) also shared how they watched YouTube videos of video game reenactments to improve their video game playing skills. These examples demonstrate how the Internet is a great resource for learning and developing skills, formally and informally.

Interests. Alongside the educational subtheme is the subtheme of interests. As previously stated, participants expressed that they learned new information and skills through "research" and "browsing" online. Many participants (n = 6) also reported a wider scope of interests and hobbies they would not have considered if they had not come across these topics while researching and browsing online. For example, Elizabeth became interested in the television series *Sherlock* because of the all the positive reviews of the show people were posting to her website. She admitted that she would not have been interested on her own but now not only loves the show but has half of an entire bookshelf full of Sherlock Holmes books. She stated, "That's what got me into all the books . . . I watched it and now I love Sherlock and the reason that became my interest was because of the Internet and it's influenced which books I read too." She continued, "I think [the Internet] has introduced me to a lot of things that I wouldn't have found out about otherwise." Matt shared a similar experience and stated, "Since I've been using the Internet, my interests have branched out, more towards games and music, and I wouldn't have never really listened to it if I hadn't been on the Internet." For participants like Elizabeth and Matt, the Internet's ability to expose participants to a wide range of information and topics allows people to find and cultivate new hobbies and interests they would not have sought out on their own. As stated by Nathan, "You can find hobbies you didn't necessarily know were your hobbies. . . . It puts a lot more options out there and makes it like, a lot easier to get into something new if you want."

Bringing People Closer

Reducing the miles in between. Many of the participants (n = 7) made reference to how the Internet allowed them to develop and or maintain relationships without physically being in the same location as their friends or families. Several of these participants (n = 4) reported using

the Internet to keep in touch with family members who live, work, or study outside of their state of residence. For youth like Jordan who come from a complex and extended blended family with members living in different states, the ability for him to connect with all the members from his current and previous families plays an important role in his development and sense of belonging in his family. Jordan shared how his interest in sports was influenced by his previous step-brother who played baseball. After Jordan's father and his previous step-mother divorced, Jordan maintained contact with previous his stepbrother and stepmother through the Internet. He stated that his communication with them led to his interests in sports. The Internet has also helped Jordan ease into meeting new family members by befriending them online first prior to meeting them. Jordan shared, "Like a month ago—my brother has a brother, and I've never met him—but he was like my friend on PS3 [PlayStation 3] and we talked before I went to go visit him in Michigan."

The most poignant examples demonstrating the impact of the Internet's ability to reduce physical distance between people was shared by individuals whose ASD-related social deficits and anxiety hindered them from developing friendships in real life. When asked whether Elizabeth thought the Internet was a good or bad thing, she stated,

> It's a really good thing because you can meet people you wouldn't have met otherwise. A couple of my favorite people right now, I met through Tumblr [website hosting personal blogs] and stuff. One of them lives in Oklahoma and another lives in Texas so they live 13 hours away from me. One of my friends that I've had for a long time, [friend's name], I've known him for two to three years and he lives in North Carolina.

Later in the interview, Elizabeth reiterated the impact the Internet has had on her social circle,

> I've made a lot of amazing friendships online and I never would've had the chance otherwise. It has really helped me develop friendships, like I don't think I would've developed many friendships outside the Internet, so the Internet has been a very very great tool for me making friends.

Similarly, Mandy commented that the Internet "is a good way to connect with other people you would've never met before." Mandy stated that the Internet was her "social outlet" and that since most of her friends are "Internet friends," the Internet is the primary way she talks to them because of the distance. She shared, "Actually my three closest friends are the one in New York, the one in San Francisco, and I have one that lives in Greece actually." She talked about how the Internet has impacted her relationships with her friends because the Internet "makes it a lot easier because they're right there. It doesn't matter how far away they are, they're still right there."

Accessibility to people. Participants (n = 3) commented on how the Internet can grant access to people when certain circumstances and restrictions are imposed on their existing relationships. Neil shared how his sister had been in rehabilitation at the hospital for the past two months due to being victim of a hit-and-run accident. Being a close family, Neil used FaceTime to talk to her when he was not visiting or when it was after visitation hours at the hospital. Other participants also shared how they used the Internet to keep in touch with classmates particularly during the summer. Jordan stated that "it's usually during the summer where I can't like actually talk to them" that he uses the Internet to keep in touch with his classmates. He reported using social media websites and applications like Instagram (a picture-taking phone application) to connect with classmates during the summer. In reference to the private messaging function on Instagram, Jordan stated, "My friend sent me his number and I can do that too and a lot of people

send me their number over the summer." School offered a centralized location for students to meet physically to develop and maintain their friendships with each other. Without a centralized location during the summer time and with classmates on vacation, participants reported using the Internet to maintain their friendships during the summer holiday.

Another way that the Internet provides accessibility to people is in the variety of types of people (n = 3). The following examples demonstrate how the Internet can grant access to a wider range of people than one would likely have access to in real life. Mandy shared that she experienced more success searching for people to be her friends who also understood her Asperger's diagnosis online than offline. She stated,

> Even though it's a really common diagnosis these days, it's hard to find people who are either willing to talk about it, know what it is, or have it in general. So going on the Internet, like going to [name of ASD forum] that has over 80,000 members, there's a lot of people on there [to choose from].

Likewise, Nathan talked about how the Internet provides a way for people to access easily other people who have similar interests. He confidently conveyed that the probability of finding someone who had similar interests was greater online than offline by stating, "If you wanted to find people who do the same things as you do, you could do it all together. It's there and you can find it a lot easier than if you have to go to a bulletin at some place and hope [to find people]."

Similarly, Elizabeth's most recent project was the creation of a website that pairs adolescents and young adults who have similar difficulties (i.e., depression, ASD) with each other in order to find support from one another. At the time of the interview, the website had over 900 followers and generated over 500 pairs of people supporting each other. Elizabeth's

"favorite people" that she mentioned in her previous quote were a result of this project on Tumblr. The Internet's ability to grant access to a greater pool of people to befriend also resulted in easier access to individuals who share participants' unique characteristics, interests, and struggles which may be difficult to find in real life.

Easier communication. A recurring idea that was noted throughout the participants' (n = 6) interviews was the notion that online communication was easier than offline communication. Analysis of statements by participants suggested that certain features and characteristics of the online environment better facilitated friendships for participants with ASD as it allowed for easier communication. These features and characteristics are organized in the following categories: (a) Immediacy of Topic, (b) Response Time, and (c) Lack of Face-to-Face Demands.

Immediacy of topic. A few participants (n = 3) conveyed that the immediacy of topics online made communication easier. As an avid gamer, Nathan spoke a lot about his experiences playing video games on the computer and online. In a discussion with Nathan about online and offline personalities, he shared how he ends up "talking more and being more outgoing and helpful" when he is gaming online with others than offline. When asked why, he responded, "When you're playing a game, that's something you can talk about, you can talk about what's happening as opposed to having to think of conversations." He further stated at various points in the interview that talking while gaming was "easier" because "immediately there's a subject to talk about," eliminating the need for him to "fish for a subject" or "figure out a topic." Interestingly, through the interview questions he was able to reflect on this pattern of behavior and recognize the applicability to real life. He stated,

> I've had real life conversations where it's like I've run out of things to say and I don't necessarily know [them] well enough to start sharing life stories. [However], like at school, if there's a topic it's then a lot easier to then shift into other conversations. And realizing now that, 'Oh why is it so much easier for me to talk online?' Well, there's immediate subject matter and so it's immediately something to talk about.

He further reflected on how this pattern of behavior was presented in his offline personality and stated, "I'm always a little nervous, and I feel a little awkward even if at the start of conversations and once it gets going, it's a lot easier to keep going because there's subject matter."

Other participants also commented on other ways that the Internet offers immediacy of topics to facilitate conversations. Matt shared that he enjoyed frequenting "any type of forums" online to "ask questions and answer questions" about designated topics, his favorite being video game forums. Neil shared that he used a website called Amigo to text chat or webcam with people with similar interests. Neil highlighted that a special feature of Amigo was to pair users directly with other users who have similar interests. He explained, "What you do is you type in what are your interests. So for example, if I like dolphins, I type dolphins . . . and then it pairs me with somebody that likes dolphins."

Response time. Several participants (n = 4) reported easier communication online rather than offline due to the asynchronous environment the Internet can offer. When asked why online communication was easier, Elizabeth confidently stated, "I think it is definitely a lot of the I-don't-have-to-reply-immediately, like I can reply the next few days or when I want to." For participants with ASD like Elizabeth who struggle with the ability to sustain back-and-forth conversation, she shared that "it's much easier to type to someone than it is to talk to them [in

real life] because you can think about your responses and you have time to be able to formulate them." Elizabeth commented that in comparison to real life conversation, "you have all the time you need" on the Internet to respond to people. Likewise, Neil shared that he found the Internet easier to communicate on because he is able to slow down to chat. In real life, Neil revealed that people sometimes found him odd because he has a tendency to speak first then think later, sometimes resulting in strange or inappropriate content when speaking. He stated, "It's so hard for me to get friends in real life because I act so quick and fast that I don't get time to think what I'm going to say." Chatting online allowed Neil to slow down and think through what he wanted to say first instead of speaking about the first thing that comes to mind.

Nathan also made similar comments regarding the forgiving response time an online environment offers when engaging in certain activities. Nathan reported less pressure chatting with other players during multiplayer games, stating that "there's not going to be nearly as much quick pauses [while talking and gaming], and if there is, it's not that big of a deal because you're playing a game." According to Nathan, "quick pauses" was in reference to the moments of silence that can occur during a conversation in real life. He continued to clarify why he felt less pressure chatting with others while gaming by stating, "You can talk as much as you like, like you can say more if you want to, but it's not like there's going to be a huge awkward silence." According to Nathan, it is acceptable not to respond immediately while talking and gaming, which allows for easier communication due to decreased pressure.

Lack of face-to-face demands. A number of participants (n = 5) shared that they found online communication easier than offline communication because of the lack of face-to-face demands involved in online communication. The difficulty individuals with ASD experience with reading social cues is a defining characteristic of their diagnosis. For several participants,

one way in which the lack of face-to-face demands helped with their communication was the elimination of nonverbal behaviors. Mandy shared that the lack of face-to-face demands allowed her to focus on what the person is saying instead of worrying about how she is projecting herself nonverbally or wondering what she is missing because of her difficulty in reading body language. In reference to online communication she stated, "There's no pressure to glance at people, look them in the eyes, or read their body language. They'll tell you exactly how they feel." Elizabeth also poignantly shared her struggles with reading social cues and how being online allows her to communicate more easily. In regards to online communication she stated,

> I don't need to worry a lot about social cues and stuff like that. Like I can't tell what someone is feeling unless they speak to me. Like people say to like read expressions from people's eyes and stuff and I think everyone looks the same. So I don't know what exactly what that is (social cues).

Participants also shared how the lack of face-to-face demands offers them a greater chance to be befriended by another person online than offline. Neil shared that people who meet him in person tend to have preconceived notions of who he is just by looking at him. He commented that people say, "don't judge a book by its cover but people do that a lot sometimes." He continued, "When I meet people in real life it's hard because people don't take that aspect of 'don't judge a book by its cover' and they don't take that advice. They rather just go straight through with like, 'Oh you're fat.'" However, online, Neil shared that because there is a lack of face-to-face demands in many activities online that people do not mind what he looks like after they get to know him as a person first. Neil shared how people online are "less judgmental when they don't know what you look like and who are you are." He stated,

> On the Internet, they don't know who I am, they don't know how I look. So I try acting nice, I try being very nice, play video games with them and stuff like that and they're like, "Oh this guy's pretty nice!" And then later on, I show them my true form! And they're like, "Wow, I didn't know that you looked like that."

Finally, participants commented on how the lack of face-to-face demands allowed for deeper conversations due to less pressure and self-consciousness. In regards to talking about more in-depth conversations, Nathan shared, "Because we're not face–like we're not actually face to face so like it's less awkward." Similarly, Jordan talked about how he and one of his good friends talked about different things online compared to offline. Jordan stated that, "We're really good friends in person, and I guess online we're more . . . I guess like we can talk to each other more about certain things because we're not face to face." When prompted about how the conversation was different between Jordan and his friend online and offline, he stated,

> Well in person we talk about like when we wanna hang out I guess, and then like when we're not in person like we talk about–like he tells me about–I guess if he got dumped or if he had a winning baseball game, like it's more . . . I guess more personal, deeper thoughts.

Negative Social Interactions

In discussions with participants about their negative experiences online and cyberbullying, several participants categorized their negative online social interactions in different categories: negativity, trolling, and cyberbullying. Based on participants' comments, instances of negativity were clearly defined while examples of trolling and cyberbullying were less well defined.

Negativity. A few participants (*n* =3) shared that they have been the recipients of negative comments or behavior that resulted in feelings of discouragement or embarrassment. Elizabeth shared that when she first started her project of pairing up adolescents and young adults with similar needs, "people talked about how there's not really a need for it or that it helped anyone." Similarly, Mandy shared that when she posted a video of herself speed painting on YouTube, she received negative comments about her work. She stated, "One time when I was starting out drawing, someone posted something like, 'Your use of watercolors is like crap.'" Neil, who maintains a YouTube channel, shared how he once made a fan fiction (stories written by fans based on original works from popular books, TV showsshoes, games, comics, movies, etc.) he was very proud of but ended up receiving a negative review from another YouTube personality. He shared how he was "very embarrassed, really really embarrassed" when he watched the YouTube video review of his fan fiction. He stated that the reviewer kept saying, "Oh my god that is one terrible story." Even though participants expressed negative feelings from the negative or rude comments made by people online, the participants recognized that the negativity was not purposely directed towards them. Elizabeth stated that "they were just having conversations among themselves," but due to the open and public nature of talking to others in the comment sections of blogs, Elizabeth was able to see the negative comments about her project. As stated by Elizabeth, "They could have had their conversations about the project through messaging or something that wasn't so public so I couldn't have seen it." Mandy aptly stated about those who made negative comments about her work, "At that point they're not actually out to harm anyone, they're just stating their own opinion."

Trolling. Another category of negative social interaction participants (*n* = 4) shared about was trolling. According to participants, trolling was used to describe instances of online

bullying which were considered more of a "nuisance" or "annoyance" rather than a threat. Neil likened the act of trolling to "pranking." For instance, Neil provided an example where when creating a structure in an online game, someone goes into the game to do "something horrible to the structure" and "destroys it." Based on participant descriptions, trolls intentionally seek to aggravate other users online whether through their words or actions. Nathan described trolls as "people who are just trying to get a rise out of you," who are "out to get you, to make you mad just because it's entertaining to them." They can be "really unhelpful and downright nasty" but "it's not really abuse." Nathan stated that when dealing with trolls, he's "pretty good at shrugging off the people who are jerks genuinely or trying to get a rise out of you and make you upset." One participant, Mandy, stated that "If you're going to be nasty just be nasty, then that's bullying." However, within a few sentences, she stated "I haven't really been cyberbullied myself unless you count the nasty comments." These statements suggest that participants view trolling as form of bullying, but they do not perceive it to be as serious as cyberbullying. But because trolling is an intentional act to aggravate another person, Mandy suggested that trolling can morph into cyberbullying. She stated that acts of trolling can escalate to where "they actually want to do some sort of harm like psychological, physical, or emotional." Roger gave an example of how when trolling, users may feel defenseless when trolls steal virtual items when gaming. He then shared how that can escalate into hacking, which he considered to be a type of bullying. He stated, "I guess hacking is a form of online bullying, because it makes people feel really weak by doing those things." However, it was unclear from participants when acts of trolling become acts of cyberbullying.

Cyberbullying. While querying participants' definition of cyberbullying, participants revealed several characteristics of cyberbullying. According to participants, cyberbullying

involved harming or threatening (psychological, physical, emotional) another individual through electronic means. Participants also noted that the act of cyberbullying was often done anonymously. Because of this, some participants (n = 3) viewed cyberbullying as a cowardly act. Mandy stated that cyberbullying was "the coward's way of bullying because you can do it anonymously, as someone else." Betty stated that a cyberbully was "somebody that doesn't have the guts to say something to your face so they say it on the Internet." Similarly, Jordan reported that cyberbullies "are too scared to do it in person so they bully online."

Participants (n = 3) viewed acts of cyberbullying as more severe than other negative social interactions because of potential for damaging effects. Neil stated,

> Cyberbullying is like someone messaging you or sending tons of emails saying like "you're fat" or like threatening you, like "I have a knife to slit your throat" or something. Cyberbullying isn't like, it isn't like some video game where some guy picks on you (in reference to trolling).

Mandy stated that cyberbullying "can seriously harm someone" and participants who were victims of cyberbullying reported being anxious and "really scared." Jordan shared how when he was younger, he uploaded a song he made on YouTube for a girl he liked. The girl did not respond positively to Jordan's song and reportedly made a video to make fun of him and shared the link with all their other classmates. Jordan deleted the song from YouTube, but it "didn't really help because everyone in the school saw it." Jordan stated, "I feel like it's worse if you do it on the Internet . . . that stuff's saved, in your messages or whatever." He also talked about the snowball effect of online bullying how each message or video can get passed on from one person to another even if it is deleted. For Jordan, it was as if the bullying kept repeating itself because the girl was able to keep forwarding saved copies. Jordan shared that the incident

made him so uncomfortable to be at the school that he "wanted to move because of that." In the end Jordan did move to a different city for a different reason so the situation resolved itself. However, Jordan's example demonstrated how the effects of cyberbullying can negatively impact daily functioning.

Combating Negative Social Interactions

Prevention. A few participants (n = 3) in this study reported being victims of cyberbullying while the majority of participants did not report instances of cyberbullying. However, of participants who did not report instances of cyberbullying, some (n =2) spontaneously shared why they have not been cyberbullied. Elizabeth stated that she takes preventative measures and is careful with her online safety. She shared that she did not have any experiences with cyberbullying and stated,

> I'm normally pretty careful with my online experiences. So, I think that might be a factor in it. Like I have my Facebook profile set so no one can see me unless I send them a friend request and on Tumblr like I only reach out and follow people who like I know are nice people, who I've spoken to before.

Nathan also did not have any cyberbullying experiences and stated, "I'm not on Facebook, which is probably an easy means of avoiding that." He also shared, "I'm not super vocal with my actual name and most of the time if I meet somebody they just know whatever name I'm using online and that's never my real name." Based on participant responses, preventative measures such as privacy settings, safety precautions, and choosing who to engage with online are ways in which adolescents can decrease the likelihood of being cyberbullied.

Avoid, ignore, leave. When faced with negative social interactions such as negative comments or trolling, several participants (n = 3) suggested ignoring the instigators (i.e., "don't

feed the troll") and or leaving the situation. Nathan stated that when he games, he will on occasion come across players who may be negative and mean because they are upset from losing the game. In those cases, Nathan said he would "leave, mute, and ignore." When referring to other instances of negativity, Nathan stated that "generally if somebody's negative you can just avoid it or you can just leave." Mandy, who received negative comments for her artwork on YouTube, suggested to "stay out of the comment section of YouTube that's for sure" to avoid the negativity of users. As both an avoidance and prevention tactic, Mandy shared that the YouTube comment section can be disabled to avoid the potential mean comments online users may post.

Support of peers. Several participants (n = 3) shared that the support of peers helped alleviate the negative feelings they felt from negative social interactions online. As previously stated, Elizabeth reported some users conversing about how her online project was unnecessary and useless. However, because of those negative comments, supporters of the project messaged Elizabeth to share the positive experiences they had with her project. Elizabeth stated,

> But at the same time because I saw that, someone sent me a message talking about how I made an impact on their life by starting the project. So it's also put out there so that's also why I wasn't too upset about it after because I have this really positive message that cancels the negative one so they balance out.

Elizabeth shared that her positive social interactions online outweighed her negative social interactions. At the end of the day, Elizabeth stated that the project "gets a lot more positive feedback than we do negative feedback," and she has learned to focus on the positive support she has from her peers rather than the few negative comments.

As stated before, Mandy, too, experienced negative feedback for sharing her artwork on YouTube. After having an online user comment on her wrong use of water colors and "crap" attempt at painting, she shared that her friends went online to stand up for her. She stated, "I had a couple of friends back me up so it's all good. I thought, if you don't like it why did you click on it. But I felt better after my friends got there." These examples demonstrate how the indirect and direct support of peers can diffuse negative feelings associated with negative online social interactions.

Nathan also shared how the support of peers can deter trolls from disturbing other users. Nathan stated that gaming communities are very cooperative in nature and they dislike users who cause trouble by spreading negativity and trolling. As stated by Nathan, "negative players and stuff–in most games, that's something that the entire community and even the people who made the game don't really want." Nathan explained because the gaming community as a whole is supportive of one another, users will stand up for other users or employ tactics such as ignoring to stop negative social interactions.

Seek help from adults and authority figures. Three participants in this study reported seeking help from adults or authority figures to resolve instances of negative online social interactions. Of the participants, Betty reported the most severe case of cyberbullying. She shared how there was a bully at her school who liked to intimidate other students and Betty was one of the students she targeted. Betty stated she did not know why she was targeted, but that the "bully does this to other people all the time." On one occasion, the bully's teasing and harassment escalated and she texted Betty that she was going to hurt her after school. Betty stated, "She said she was going to hurt me because I'm nothing but a mistake and no one likes me." When asked how she dealt with the situation, Betty stated, "I told the principal and showed

him my phone and the person got time-out, like detention." Betty shared that the bully never grew fond of her, but stopped bothering her after the incident.

As previously stated, Nathan shared that the gaming community has low tolerance for users who spread negativity through trolling. He reported that users who disrupt the gaming community through trolling will often get reported to administrators which results in bans or suspensions on the users' accounts. Roger reported similar gaming experiencing with trolls and hackers, "A lot of the time the staff go around and find hackers, and they will mute people so they're not allowed to talk in the game." These examples demonstrate how negative social interactions such as cyberbullying and trolling can be diffused with the help of authority figures.

CHAPTER 5

DISCUSSION

Theme 1: Benefits of Internet Usage

Participants in this study conveyed numerous examples of how they have benefited from using the Internet and related technologies. Participant responses were categorized in the following four areas of perceived benefits and detriments: social, emotional, educational, and interests.

The social benefits of online usage can be seen spread among the various themes derived from this study, and is closely tied to the emotional benefits of Internet usage. However, several were chosen to be categorized specifically under the social subtheme to highlight certain aspects of participants' experiences. As documented in literature, research on the social and emotional benefits of Internet usage are wide and many among typically developing youth but a dearth of research exists for the special needs population, specifically ASDs. Participants from this study reported positive social experiences in line with existing research on typically developing individuals such as increased perception of social support (Shaw & Gant, 2002), increased offline social interaction as a result of online interaction (Jacobsen & Forste, 2011), and significant correlations between social networking sites and offline communication and friendship closeness (Ledbetter et al., 2011). However, participant responses highlighted aspects of their experiences not available in current research on this topic and population. Qualitative in

nature, participants in this study captured the necessity of using the Internet for social interactions. Several participants believed they would only have a few friends, if any, without the assistance of the Internet. For these participants on the spectrum, the Internet and related technology was their social lifeline and helped them overcome and manage social difficulties associated with ASD to build and maintain relationships.

Participant responses on the social benefits of the Internet are contradictory to the only two existing research studies on youth with ASD and social media. According to Mazurek et al.'s (2012) study, only 13% of youth on the spectrum engaged in social media during their free time. In comparison to this current study, more than half of participants from this study shared they used social media sites and applications regularly. Mazurek et al. used "email" and "internet chatting" as measures of social media engagement. However, recent literature has shown email is increasingly unpopular with the teenage population and there is a decrease among adolescents using email (Lenhart, 2012). Similarly, Mazurek and Wenstrup (2013) found that parents of children with ASD aged 8-18 reported that their children spent significantly less time (0.2 hours per day) engaging in social media (email, Facebook, and texting) compared to their typically developing siblings (1 hour per day), and that a great majority of the children with ASD (76% boys, 90% girls) never played online multiplayer games. While there is no comparison group in this study, participants in this study use social media sites regularly and almost all participants who engaged in gaming, play multiplayer games. As mentioned in these studies, the level of functioning and language impacted these participants' scores and behaviors online. Considering the participants in this current study are all high-functioning, this likely influences their choice of activities and behaviors online.

Theme 2: Bringing People Closer

Participants from this study shared how using the Internet and related technologies have brought them closer to people by eliminating physical distances, creating easier access to people with certain characteristics, and providing an environment that allows for easier communication. These subthemes provide further insight into social benefits of Internet usage for the participants in this study and also mirrors results of studies conducted on typically developing peers (Anderson & Rainie, 2010; Ito et al., 2008), socially anxious individuals (Tian, 2013; Valkenburg & Peter, 2009) and adults with ASD (Mazurek, 2013). Considering participants from this study are youth with ASD who self-disclosed that they often experience social anxiety, it is not surprising their responses were similar to those derived from the aforementioned studies.

Participants shared several ideas in these subthemes that were particularly salient for the ASD population. A few participants in the study shared how the Internet provided them access to others who shared the same disorder and similar struggles who were able to offer a level of understanding and support that is difficult to find in real life. As Hellenga (2002) contended, the Internet has become a gathering place for various groups (e.g., cultural, political, minority groups) who would not have access to individuals similar to themselves offline. Similar to results of Jordan's (2010) study that examined an online ASD community, participants no longer need to feel isolated by their disability and are able to explore their ASD identity in an environment with similar peers.

Under the subtheme of easier communication, participants in this study pointed out that communication facilitated through the Internet was easier than offline communication for three main reasons: immediacy of topics, response time, and lack of face-to-face demands. As discussed in the literature portion of this dissertation, Walther's (1996) hypersonal

communication theory posited there are four components of computer-mediated communication that helps relationships online surpass face-to-face relationships: receiver process effects, message sender effects, channel attributes, and feedback effects. The three reasons participants conveyed during the interview highlight how the four components of CMC are applicable to the ASD population. For receiver process effects, participants reported decreased anxiety levels from lack of face-to-face demands in an online environment, allowing them to communicate more easily and more clearly. Additionally, participants also reported being able to mask their socially awkward behaviors in the online environment, which allowed them to be more likely accepted by online peers. This aspect demonstrates Walther's message sender effects. Participants also articulated how channel attributes contributed to easier communication. The asynchronous environment allowed participants time to think and respond appropriately in comparison to real life. The net effect of these components resulted in positive online socialization, which demonstrates Walther's feedback effects. These examples are consistent with the dearth of literature on online experiences among ASD adults (Jordan, 2010). An additional aspect of online communication salient to the ASD population and not discussed in literature is the immediacy of topics that users online can immediately tap into, which helps with their social anxiety and awkwardness. As presented by the participants in this study, part of what makes socialization difficult for individuals on the spectrum is not knowing where to start and not knowing how to make small talk. With an immediate subject matter, ASD individuals are able to focus on other aspects of communication instead of feeling paralyzed due to their inability to conjure content to discuss.

Theme 3: Negative Social Interactions

When asked about their knowledge and experiences with cyberbullying, the majority of participants indicated that they had not experienced cyberbullying. Instead, many participants spontaneously shared about other online experiences which they thought were similar to cyberbullying but did not categorize those experiences as such. As this study is exploratory in nature, participants were asked to give their own definitions of cyberbullying instead of being given the research definition of cyberbullying. Their understanding of cyberbullying in combination with their interpretation of their negative social interactions online resulted in three categories: negativity, trolling, and cyberbullying. Analysis of these three categories revealed several interesting notions: (a) participants' responses reflected the complexity of cyberbullying and the incompleteness of cyberbullying definitions used in literature, (b) different levels of severity were associated with each categorization, and (c) ASD participants' ability to differentiate between cyberbullying and other forms of negative social interactions online.

As pointed out by Mehari, Farrell, and Le (2014), literature on cyberbullying has been plagued with inconsistent definitions and domains of behavior. Various labels have been used interchangeably with cyberbullying, with slight variations in their definitions including: online harassment, online bullying, Internet bullying, Internet aggression, electronic aggression, cyber aggression, and electronic bullying. For the most part, at the core of these labels is the idea of peer-targeted aggressive behavior perpetrated via communication technologies (Mehari et al., 2014). Responses from participants in this study yielded a similar definition involving the harming or threatening of an individual through electronic means. It is interesting that despite the similarity of their definition of cyberbullying to the definition of cyberbullying used in literature, participants did not perceive trolling to be the same as cyberbullying. Based on

participants' explanation of online trolling, trolls exhibit aggressive behavior towards online users (especially easy target who will react) through the Internet. According to Buckels, Trapnell, and Paulhus's (2014) definition, trolling is the "practice of behaving in a deceptive, destructive, or disruptive manner in a social setting on the Internet with no apparent instrumental purpose" (p. 97). The researchers further explained that trolls are agents of chaos, and that they intensify their behavior when victims fall into their trap, often resulting in merciless amusement for the trolls. In a sense, the purpose of trolls' behaviors is to achieve a negative emotional response from users.

It is possible that the participants' perception of the level of severity between the two types of negative online social interactions caused them to differentiate them into these two categories. Based on participant responses, online negativity was seen as the mildest form of negative social interaction among the three categories. Participants understood that the negativity was not necessarily directed towards them, but rather an expression of opinions or viewpoints. Cyberbullying was seen as the most severe, and trolling was seen as milder *than* cyberbullying–not a milder form *of* cyberbullying. Considering that most cases of cyberbullying presented in the media are severe (i.e., with suicidal consequences), it is possible participants associate cyberbullying with incidents resulting in harsher outcomes. Participant responses also suggested that trolling was easier to alleviate than cyberbullying, perhaps adding to the perceived severity of cyberbullying in comparison to other negative social interactions online. As illustrated from the participants' responses in this study, the complexity of the phenomenon adds to the difficulty of defining cyberbullying consistently across various studies. These issues with consistency contribute to the wide range of prevalence rates for cyberbullying (Gleeson, 2014), with studies reporting prevalence rates from 4 to 75 percent (Juvonen & Gross, 2008). Without a

consistent definition of cyberbullying that captures the complexity of the phenomenon, participants can be underreporting or over-reporting instances of cyberbullying (Olweus, 2012), impacting our ability to understand and clinically respond to cases of cyberbullying.

A final interesting note about participants' responses regarding negative social interactions was their ability to make distinctions between cyberbullying and other instances of negative social interactions online. Van Roekel et al. (2010) suggested that adolescents with ASD are expected to have difficulties with recognizing bullying behavior because of their difficulties with interpreting social situations correctly due to their less developed social insight. However, when comparing the social perception abilities of children with ASD with typically developing peers, children with ASD only scored significantly lower than comparison groups when multiple cues were presented (Loveland, Pearson, Tunali-Kotoski, Ortegon & Cullen-Gibbs, 2001; Pierce, Glad & Schreibman, 1997). The results from this study are consistent with these studies and suggest that although youth with ASD may struggle with interpreting complex social situations, they are able to understand social situations when there are fewer social cues to attend to or when they have more time to process the situation due to the asynchronous nature of the communication. This may explain why the participants in this study were able to differentiate varying levels and categories of negative social interactions online as there are fewer social cues to attend to in an online environment and they were provided opportunity to reflect in the interview situation.

Theme 4: Combating Negative Social Interactions

In regard to combating negative social interactions, the responses from participants in this study reflect the literature on cyberbullying on typically developing children and adolescents. In studies about youths' perceptions on cyberbullying, avoidance has been the most commonly

reported strategy in dealing with cyberbullying (Dehue, Bolman, & Vollink, 2008; Parris, Varjas, Meyers, & Cutts, 2012; Sleglova & Cerna, 2011). Ignoring (Parris et al., 2012), safety prevention measures (Price & Dalgleish, 2010), and social support (Parris, Varjas, & Meyers, 2014; Price & Dalgleish, 2010) have also been strategies cited by participants who have experienced cyberbullying. Participants' responses in this study mirror these results. Contrary to the literature, some participants in this study sought help from adults or authority figures when faced with cyberbullying and other negative online social interactions. While some studies have cited telling adults as a coping strategy against cyberbullying, informing or seeking help from adults has been an unpopular strategy among youth who have been cyberbullied (Parris et al., 2014). The two main reasons why youth are not keen on seeking assistance from adults is the fear of losing access to technology if the cyberbullying incidents were reported and also their lack of confidence in adults to alleviate the cyberbullying problem (Parris et al., 2014; Sleglova & Cerna, 2011). Participants from this study did not report these problems. They did not lose access to technology after reporting their cyberbullying incidents and participants reported receiving resolution to the negative online social interactions after an adult or authority figure intervened. These findings, in combination with previous literature, stress the importance of creating a school, home, and online environment where the victims of cyberbullying do not feel like they will be punished for someone else's negative behavior by losing their own technology privileges. Also, victims need to feel like adults and authority figures have the ability to help them. However, it is often times youth who are more "tech-savvy" than many adults, as evidenced through the initial descriptive statistics presented in the beginning of Chapter 4. This issue is addressed in the section below.

Participants' Versus Typically Developing Adolescents' Online Social Experiences

Online Social Experiences

Participants from this study generally reported positive online experiences, with a majority (n = 7) of participants referencing social experiences when asked to describe a positive online experience. Conversely, when asked to describe a negative experience, only two participants spontaneously referenced a social experience. In literature on the online experiences of typically developing adolescents, those participants likewise generally reported much higher percentages of positive personal outcomes (78%) in comparison to negative outcomes (41%) from Internet usage (Lenhart et al., 2011). While Lenhart et al.'s (2011) study examined a variety of outcomes, all the outcomes could be interpreted as social in nature (e.g., closeness to people, positive/negative feelings, in-person arguments, etc.). Results from other studies also demonstrate how the Internet contributes to positive social experiences by maintaining existing relationships and developing new social connections (Gross, Juvonen, & Gable, 2002; Lee, 2009). These studies found that the Internet was mostly used for maintenance of existing relationships but noted that using the Internet to develop new social connections was predominantly utilized by participants who experienced difficulty in their social life offline, who had difficulty making friends, or were socially anxious or lonely. Other groups of individuals who utilize the Internet to develop new social connections include those isolated from their communities (i.e., those with interests beyond what is available locally) or those who are only children or home-schooled, in order to learn about a wider range of people online (Bonetti, Campbell, & Gilmore, 2010; Gross et al., 2002; Stewart, Barnfather, Magill-Evans, Ray, & Letourneau, 2011). Participants from this study possess qualities and circumstances similar to the participants in literature who utilize the Internet to make new social connections.

Participants from this study have social impairments in real life as a result of ASD, with some attending online school (a form of homeschooling), and some expressing difficulty finding individuals offline who understand their condition. It is therefore not surprising that many participants (n = 6) in this study referenced using the Internet to make new friends, with two participants sharing that their best friend offline was originally initiated online.

Gender Differences

In typically developing adolescents, female and male adolescents used social media sites in similar ways (Gross et al., 2002; Lenhart et al., 2011; Tressoldi, 2014). No statistically significant gender differences were found in the way the majority of these adolescents socialized (commenting on posts, status updates, IM/chat, private messaging) on social media or their engagement in playing games on social media sites. No difference was found in the level of closeness of online friendships among girls and boys (Gross et al., 2002). However, girls post or tag photos and videos on social media more than boys (Lenhart, Madden, Macgill, & Smith, 2007; Rideout, 2012). Girls are also more likely to experience negative feelings such as stress, feelings of being left out, or worry about how they look in online photos compared to boys (Lenhart et al., 2007). Despite the small sample of participants in this study and uneven number of males and females, anecdotal information from participants' interviews suggest that male and female adolescents with ASD may socialize differently online. All male participants in this study referenced gaming, and they were more likely to perseverate on the topic compared to their female counterparts. In contrast, only one female participant made a brief comment about gaming. At the end of the study, two of three female participants offered permission for me to contact them to chat if I saw them online while none of the male participants offered. These data are different from the literature on gender differences of adolescents who use social media. It is

possible that the stereotyped interests (i.e., gaming) of this population may contribute to the wider online differences among female and male adolescents with ASD.

Age Differences

In a study examining social media usage among adolescents, differences were found between the types of activities adolescents engaged in based on their age (Lenhart et al., 2011). Older adolescents (ages 14-17) were more likely to engage in social activities on social media sites than younger adolescents (ages 12-13). They also found that those younger adolescents were more likely to play games than older adolescents on social media. Older adolescents (ages 15-17) were also more likely to engage in a large number of communication activities in comparison to younger adolescents (ages 12-14; Lenhart et al., 2007). While the full range of adolescents (12-18 years of age) was invited to participate in this study, the participants who agreed to participate were disproportional and at the two ends of the spectrum. Of those who participated, responses varied highly in regard to their age and the type of social activities they engaged in online. No consistent differences were noted between the younger and older participants in this study. A future study with a greater sample size would address this issue.

Implications for Practice

This study was designed to be exploratory in nature to contribute to the lack of research on youth with ASD and their experiences online. However, one of the most important aspects of conducting research is determining how the results from the research can be applied to practice. The participants in this study are early adopters and expert users of computers and related technologies. While they are young in age, they offer insight into how youth with ASD navigate and use the Internet and how these experiences have shaped their development.

Clinicians who work with children and adolescents with ASD know that this population has an affinity towards computer and technology. Results from this study support these anecdotal observations. Analysis of the interviews revealed that participants readily engaged in online socialization, with some participants expressing the necessity of the Internet to communicate with others. Participant responses revealed that the Internet is an effective tool to meet, develop, and sustain relationships and fosters an environment conducive for communication. As suggested by a participant, through practice online, youth with ASD are able to improve their social skills offline. The Internet may be used as an effective medium for social skills intervention to help youth with ASD practice and recognize their difficulties with socialization. The Internet may also be used for self-discovery, by learning about their interests and connecting with like-minded peers who can provide emotional and practical support. Additionally, the positive experiences of participants who are enrolled in online schools suggest this may be a viable option for individuals with ASD who have difficulty learning in a traditional setting.

Interestingly, with the elimination of extraneous social cues online, participants' ability to interpret social interactions appeared to improve. Their ability to differentiate several types of negative online interactions in this study suggests that participants may be taught to recognize different aspects of social interaction when presented individually (e.g., voice inflection, facial expressions, body language). This information is useful in helping youth with ASD interact with others in real life by teaching them to recognize and focus on various aspects of social cues one at a time before interpreting the sum of the social cues.

Their ability to distinguish the negative online interactions also suggests that these participants have the prerequisite skills to cope with these negative interactions as they can

recognize whether the interactions call for alarm. However, teaching these youth with ASD how to manage the more severe types of negative online interactions (i.e., cyberbullying) will be important. For the most part, these high-functioning participants demonstrated good coping skills for less severe acts of negative online interactions. Only a few reported having been cyberbullied and those participants had sought help from adults or authority figures. While few in number, this is encouraging to see as youth typically do not want to seek help from adults for the fear of having technology taken away from them. Youth need to feel confident that when going to a parent or educator for help, they will not be punished for being the victim. Youth also need to feel confident that a parent or educator can help the situation. This means that while it will be hard to be as "tech-savvy" as these youth, adults need to have at least basic knowledge and training about the Internet and related technologies to encourage dialogue between these youth and adults. This is important not only for safety reasons, but dialogue between youth and their parents may also lead to understanding what other activities they are engaging in that may help with ASD symptomology (i.e., social skills). For over half the participants in this study, there was no parental monitoring of computer and Internet usage. Some of these participants reported having rules when younger (pre-teen), but no longer have any parental monitoring or restrictions. While it may not be necessary to monitor excessively their online activities as this may hinder their online friendships because of lack of privacy, it will be beneficial to have an open dialogue about their activities and experiences online. Adolescence is a period of time characterized by friendships and identity formation, and parents and educators should help guide these youth to make positive choices online that will help in their development.

Limitations

This study was designed to be an in-depth, qualitative study with an exploratory purpose. While the sample size of this study was small (n = 10), generalizability was never the intent of this study. This study aimed to explore the online experiences of youth with ASD in order to capture the essence of their everyday experiences online. As Parker (1994) postulated, increasing the number of participants would prompt a change in the method of data analysis that would involve categorizing responses in more manageable groups and in the process, lose specificities of each participant's stories. By utilizing interviews as the method of data collection, it ensured that the findings from this study remained those of the participants, which may not have been attainable through using alternative quantitative methods. However, there are several design limitations to be addressed about this study.

The participants in this study were recruited with specific inclusion criteria in mind. Participants were to have a diagnosis of Asperger's or high-functioning autism, be between the ages of 12 and 18, use the Internet at least three times a week, and have access to the Internet and Skype software/hardware in order to complete the interview. The participants' diagnosis and age were self-reported by the participants and their guardians. When information is self-reported, there is potential for participants to provide incorrect information. While their age is something that participants would be less likely to be untruthful about as I was able to see the participants during the Skype interview, their diagnosis is not something I was able to confirm personally. Participants were invited to participate if they received a diagnosis from a trained clinician. However, I was not able to verify the validity of the ASD diagnoses conducted by other clinicians. Additionally, ASD evaluations provide a wide variety of information on the client which I was not able to obtain because I did not conduct the evaluations myself.

Participants in this study were also required to access the Internet at least three times a week in order to be considered for this study. While the majority (n = 9) of participants in this study used the computer and Internet much more than the inclusion criteria, one participant used these technologies significantly less than the other participants. As a result, there was significantly less data to be analyzed from this participant due to the amount of time he spent on the computer and Internet. Thus, the results from this study are derived from participants who use the computer and Internet extensively and are not necessarily reflective of youth on the spectrum who use these technologies as sparingly as the inclusion criteria might indicate.

Finally, the inclusion criterion of having access to Internet and Skype software was also seen as a limitation during the course of this study. One potential female participant was unable to take part in this study because she could not complete a Skype interview. Further discussion with her mother revealed that they were a low-income family in a rural town. She indicated that her Internet speed was too slow to do a Skype interview as they are still using dial-up and that she did not own items such as webcams or headsets because they did not have the financial means to invest in those accessories. When asked if her daughter could complete a phone interview, her mother indicated that they only have a pay-as-you-go cell phone which would incur extra costs for her family to complete the interview. As a result, an interview was not completed with this potential participant, and other low-income families may have been inadvertently excluded because they did not have the financial resources to take part in this study.

Future Research

A total of seven male and three female youths with ASD were recruited for this study. While a majority of the participants (n = 9) indicated using the computer and Internet socially at

some point during the interview, it was interesting to note that the social activities they engaged in were different. Anecdotally, all male participants made reference to gaming, and the topic of gaming was reintroduced several times in the interviews by them. Many of their stories about gaming were long and elaborate. On the contrary, only one female participant made any reference to gaming, and she did not go into detail about her experience with online games.

Another interesting observation during the interview occurred at the end of the interview with the participants. Upon completion of the interview, two out of three female participants spontaneously gave permission for me to contact them again. They indicated that they enjoyed talking to me and stated, "feel free to Skype me anytime if you see me online." In contrast, no male participants offered to speak to me again at the end of the interview. These observations suggest that the male and female participants may use the Internet differently to socialize. A study looking at the differences in the online socialization of males and female adolescents with ASD would likely yield interesting results.

In addition to comparing online experiences of males and females with ASD, comparing the online experiences of younger adolescents to older adolescents and young adults with ASD would provide more information on how age differences affect online experiences. As previously mentioned, there have only been a handful of studies conducted on individuals with ASD and their social media usage. Of the three existing studies, two of these studies broadly examined social media use in the context of screen-based media use among children and adolescents with ASD (Mazurek et al., 2012; Mazurek & Wenstrup, 2013), and one study provided an in-depth examination of social media use among adults with ASD (Mazurek, 2013). The study conducted on adults with ASD differed drastically from the two studies conducted on children and adolescents with ASD, with 80% of Mazurek's (2013) participants reporting to use

social networking sites compared to 13% of Mazurek et al.'s (2012) participants reporting to use the Internet, email, or chat. Mazurek and Wenstrup's (2013) study also demonstrated the lack of social media use among children and adolescents with ASD, with parents of children with ASD reporting that their children spent significantly less time (0.2 hours per day) engaging in social media compared to their typically developing peers (1 hour per day). A greater sample of participants, and even distribution between age groups, will address the inconsistency in literature in this area.

Another area to focus on in future research is the concept of trolling. Online trolling has been around since the early 1980s (Schwartz, 2008) and is especially prevalent in gaming and forum communities online. However, this phenomenon has been scarcely researched. Despite the popularity of cyberbullying in recent years, no academic distinctions have been made between the two online phenomena despite their similarities as seen by the participants in this study. In fact, a search of "trolling" in educational and psychology journals on EBSCOHost yielded only two relevant studies, with both studies citing the lack of research on this topic (Buckels et al., 2014; Thacker & Griffiths, 2012). Findings from this current study suggest that youth with ASD view instances of trolling and cyberbullying differently, with level of severity as a possible defining factor. While participants were not able to give clear distinctions between the two phenomena, it was evident that participants viewed these phenomena differently. Further research clarifying youths' perceptions of trolling and cyberbullying will be important in determining interventions.

Finally, it would be beneficial to conduct a study on the online behaviors of adolescents with ASD instead of the online activities they are engaged in. Participants from this study generated a comprehensive list of the various activities they engaged in while online. However,

during data analysis, I realized that many of the same activities participants reported engaging in looked very different from one participant to another depending on how the function of the activity. For instance, several participants noted during the interview that they write online blogs. While maintaining a blog may seem like a solitary activity, participants reported using the blog for various reasons such as information dissemination, therapy, making new friends, and communication. Additionally, many of the activities the participants engaged in online served more than one function, and were often related to other activities online. A study on the online behaviors of adolescents with ASD will provide a greater understanding on how these youth are accessing and using the Internet.

Conclusion

Results from this study suggest that youth with ASD in general have positive experiences on the Internet. These positive experiences translate into many benefits (social, emotional, interests, educational) that impact the development of youth with ASD. When faced with social experiences online, participants demonstrated how perceptive and resourceful they can be in finding ways to solve their problems. These findings demonstrate the potential for youth with ASD to learn, grow, and overcome various ASD symptomologies through online interactions and activities.

REFERENCES

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

American Psychiatric Association. (2013a). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.

American Psychiatric Association. (2013b). *Autism spectrum disorder*. Retrieved from http://www.dsm5.org/Documents/Autism Spectrum Disorder Fact Sheet.pdf

Anderson, J. Q., & Rainie, L. (2010). *The future of social relations.* Retrieved from http://www.pewinternet.org/files/old-media//Files/Reports/2010/PIP_Future_of_Internet_%202010_social_relations.pdf

Autism Speaks. (2013). *Answers to frequently asked questions about DSM-5*. Retrieved from http://www.autismspeaks.org/dsm-5/faq

Baio, J. (2012). Prevalence of autism spectrum disorders: Autism and Developmental Disabilities Monitoring Network, 14 sites, United States, 2008. *Morbidity and Mortality Weekly Report, Surveillance Summaries, 61*(3), 1-19.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Baron-Cohen, S., Bolton, P., Wheelwright, S., Scahill, V., Short, L., Mead, G., & Smith, A. (1998). Does autism occurs more often in families of physicists, engineers, and mathematicians? *Autism, 2*(3), 296-301. http://dx.doi.org/10.1177/1362361398023008

Belsey, B. (2004). www.cyberbullying.ca. Retrieved from http://www.cyberbullying.ca

Ben Zeev Ghidoni, B. (2007). Rett syndrome. *Child and Adolescent Psychiatric Clinics of North America, 16*(3), 723-743. http://dx.doi.org/10.1016/j.chc.2007.03.004

Berg, B. L. (2007). *Qualitative research methods for the social sciences* (6th ed.). Boston, MA: Pearson.

Bjorkqvist, K., Lagerspetz, K. M., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior, 18*(2), 117-127. http://dx.doi.org/10.1002/1098-2337(1992)18:2<117::aid-ab2480180205>3.0.co;2-3

Blumberg, S. J., Bramlett, M. D., Kogan, M. D., Schieve, L. A., Jones, J. R., & Lu, M. C. (2013). Changes in prevalence of parent-reported autism spectrum disorder in school-aged U.S. children: 2007 to 2011-2012. *National Health Statistics Reports, 65,* 1-11.

Bollmer, J. M., Milich, R., Harris, M. J., & Maras, M. A. (2005). A friend in need: The role of friendship quality as a protective factor in peer victimization and bullying. *Journal of Interpersonal Violence, 20*(6), 701-712. http://dx.doi.org/10.1177/0886260504272897

Bonetti, L., Campbell, M. A., Gilmore, L. (2010). The relationship of loneliness and social anxiety with children's and adolescents' online communication. *Cyberpsychology, Behavior, and Social Networking, 13*(3), 279-285. http://dx.doi.org/10.1089/cyber.2009.0215

Boyd, D. M. (2008). *Taken out of context: American teen sociality in networked publics* (Doctoral dissertation, University of California, Berkley). Available from http://www.danah.org/papers/TakenOutOfContext.pdf

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by design and nature.* Cambridge, MA: Harvard University Press.

Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. *Psychological Review, 101*(4), 568-586. http://dx.doi.org/10.1037/0033-295x.101.4.568

Buckels, E. E., Trapnell, P. D., & Paulhus, D. L. (2014). Trolls just want to have fun. *Personality and Individual Differences, 67,* 97-102. http://dx.doi.org/10.1016/j.paid.2014.01.016

Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2012). Bullying experiences among children and youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42*(2), 266-277. http://dx.doi.org/10.1007/s10803-011-1241-x

Carter, S. (2009). Bullying of students with Asperger Syndrome. *Issues in Comprehensive Pediatric Nursing, 32*(3), 145-154. http://dx.doi.org/10.1080/01460860903062782

Chiang, E., & Assane, D. (2002). Copyright piracy on the university campus: Trends and lessons from the software and music industries. *The International Journal on Media Management, 4*(3), 145-149. http://dx.doi.org/10.1080/14241270209389993

Christakis, D. A., & Moreno, M. A. (2009). Trapped in the net: Will Internet addiction become a 21st-century epidemic*? Archives of Pediatrics & Adolescent Medicine, 163*(10), 959-960. http://dx.doi.org/10.1001/archpediatrics.2009.162

Constantino, J. N., & Gruber, C. P. (2012). *Social Responsiveness Scale* (2nd ed.). Los Angeles, CA: Western Psychological Services.

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions.* London, England: Sage.

Creswell, J. (2005). *Educational research.* Upper Saddle River, NJ: Pearson Prentice Hall.

Dehue, F., Bolman, C., & Vollink, T. (2008). Cyberbullying: Youngsters' experiences and parental perception. *CyberPsychology and Behaviour, 11*, 217-223. http://dx.doi.org/10.1089/cpb.2007.0008

Didden, R., Scholte, R. H., Korzilius, H., De Moor, J. M., Vermeulen, A., O'Reilly, M., . . . Lancioni, G. E. (2009). Cyberbullying among students with intellectual and developmental disability in special education settings. *Developmental Neurorehabilitation, 12*(3), 146-151. http://dx.doi.org/10.1080/17518420902971356

Dooley, J. J., Pyzalski, J., & Cross, D. (2009). Cyberbullying versus face-to-face bullying. *Journal of Psychology [Zeitschriftfür Psychologie], 217*(4), 182-188. http://dx.doi.org/10.1027/0044-3409.217.4.182

Erikson, E. H. (1982). *The life cycle completed*. New York, NY: Norton.

Fauman, M. (2008). Cyber bullying: Bullying in the digital age. *American Journal of Psychiatry, 165*(6), 780-781. http://dx.doi.org/10.1176/appi.ajp.2008.08020226

Fombonne, E. (2002). Prevalence of childhood disintegrative disorder. *Autism, 6*(2), 149-157. http://dx.doi.org/10.1177/1362361302006002002

Gibbs, V., Aldridge, F., Chandler, F., Witzlsperger, E., & Smith, K. (2012). Brief report: An exploratory study comparing diagnostic outcomes for autism spectrum disorders under DSM-IV-TR with the proposed DSM-5 revision. *Journal of Autism and Developmental Disorders, 42*(8), 1750-1756. http://dx.doi.org/10.1007/s10803-012-1560-6

Gilliam, J. E. (2001). *Gilliam Asperger Disorder Scale* (GADS). Austin, TX: Pro-Ed.

Gleeson, H. (2014). *The prevalence and impact of bullying linked to social media on the mental health and suicidal behaviour among young people*. Retrieved from http://www.nosp.ie/nosp_briefing_report.pdf

Gross, E. F., Juvonen, J., & Gable, S. L. (2002). Internet use and well-being in adolescence. *Journal of Social Issues, 58*(1), 75-90. http://dx.doi.org/10.1111/1540-4560.00249

Grotpeter, J. K., & Crick, N. R. (1996). Relational aggression, overt aggression, and friendship. *Child Development, 67*(5), 2328-2338. http://dx.doi.org/10.2307/1131626

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Resources Information Center Annual Review Paper, 29,* 75-91.

Heidegger, M. (1962). *Being and time.* (J. Macquarrie & E. Robinson, Trans.). New York, NY: Harper.

Hellenga, K. (2002). Social space, the final frontier: Adolescents on the Internet. In J. T. Mortimer & R. W. Larson (Eds.), *The changing adolescent experience: Societal trends and the transition to adulthood* (pp. 208-249). New York, NY: Cambridge University Press.

Hodges, E. V., Boivin, M., Vitaro, F., & Bukowski, W. M. (1999). The power of friendship: Protection against an escalating cycle of peer victimization. *Developmental Psychology, 35*(1), 94-101. http://dx.doi.org/10.1037//0012-1649.35.1.94

Howlin, P. (2004). *Autism and Asperger Syndrome: Preparing for adulthood* (2nd ed.). Oxford, UK: Routledge Taylor & Francis Group.

Huerta, M., Bishop, S. L., Duncan, A., Hus, V., & Lord, C. (2012). Application of DSM-5 criteria for autism spectrum disorder to three samples of children with DSM-IV diagnoses of pervasive developmental disorders. *American Journal of Psychiatry, 169*(10), 1056-1064. http://dx.doi.org/10.1176/appi.ajp.2012.12020276

Ito, M., Horst, H., Bittanti, M., Boyd, D., Herr-Stephenson, B., Lange, P. G., & Robinson, L. (2008). *Living and learning with new media: Summary of findings from the Digital Youth Project.* Chicago, IL: The John D. and Catherine T. MacArthur Foundation. Retrieved from http://digitalyouth.ischool.berkeley.edu/files/report/digitalyouth-WhitePaper.pdf

Jacobsen, W. C., & Forste, R. (2011). The wired generation: Academic and social outcomes of electronic media use among university students. *Cyberpsychology, Behavior, and Social Networking, 14*(5), 275-280. http://dx.doi.org/10.1089/cyber.2010.0135

Johnson, G. M. (2010a). Internet use and child development: The techno-microsystem. *Australian Journal of Educational & Developmental Psychology*, *10,* 32-43.

Johnson, G. M. (2010b). Internet use and child development: Validation of the ecological techno-subsystem. *Journal of Educational Technology & Society, 13*(1), 179-185.

Johnson, G. M., & Puplampu, K. P. (2008). Internet use during childhood and the ecological techno-subsystem. *Canadian Journal of Learning & Technology*, *34*(1), 19-28.

Jordan, C. J. (2010). Evolution of autism support and understanding via the World Wide Web. *Intellectual and Developmental Disabilities, 48*(3), 220-227. http://dx.doi.org/10.1352/1934-9556-48.3.220

Joy, O. (2012). *What does it mean to be a digital native?* Retrieved from http://edition.cnn.com/2012/12/04/business/digital-native-prensky/

Juvonen, J., & Gross, E. F. (2008). Extending the school grounds? Bullying experiences in cyberspace. *Journal of School Health*, *78*(9), 496-505. http://dx.doi.org/10.1111/j.1746-1561.2008.00335.x

Karaganis, J. (Ed.). (2011). *Media piracy in emerging economies*. USA: Social Science Research Council.

Kimbler, J., Moore, D., Schladen, M. M., Sowers, B., & Snyder, M. (2013). *Emerging technology tools for qualitative data collection.* Retrieved from http://www.nova.edu/ssss/QR/TQR2013/Kimbler_etal.pdf

Kowalski, R. M., & Fedina, C. (2011). Cyber bullying in ADHD and Asperger syndrome populations. *Research in Autism Spectrum Disorders, 5*(3), 1201-1208. http://dx.doi.org/10.1016/j.rasd.2011.01.007

Kowalski, R. M., Limber, S. P., & Agatston, P. W. (2008). *Cyberbullying: Bullying in the digital age.* Malden, MA: Blackwell.

Krefting, L. (1990). Rigour in qualitative research: The assessment of trustworthiness. *The American Journal of Occupational Therapy, 45*(3), 214-22. http://dx.doi.org/10.5014/ajot.45.3.214

Langdridge, D. (2007). *Phenomenological psychology: Theory, research and method.* London, England: Pearson Prentice Hall.

Ledbetter, A. M., Mazer, J. P., DeGroot, J. M., Meyer, K. R., Mao, Y., & Swafford, B. (2011). Attitudes toward online social connection and self-disclosure as predictors of Facebook communication and relational closeness. *Communication Research, 38,* 27-53. http://dx.doi.org/10.1177/0093650210365537

Lee, S. J. (2009). Online communication and adolescent social ties: Who benefits more from internet use? *Journal of Computer-Mediated Communication, 14*(3), 509-531. http://dx.doi.org/10.1111/j.1083-6101.2009.01451.x

Lenhart, A. (2012). *Teens, smartphones & texting*. Retrieved February 20, 2014, from http://www.pewInternet.org/files/old-media//Files/Reports/2012/PIP_Teens_Smartphones_and_Texting.pdf

Lenhart, A., Madden, M., Macgill, A. R., & Smith, A. (2007). *Teens and social media.* Retrieved from http://www.pewinternet.org/files/old-media/Files/Reports/2007/PIP_Teens_Social_Media_Final.pdf.pdf

Lenhart, A., Madden, M., Smith, A., Purcell, K., Zickuhr, K., & Rainie, L. (2011). *Teens, kindness and cruelty on social network sites.* Retrieved from http://www.pewinternet.org/files/old-media//Files/Reports/2011/PIP_Teens_Kindness_Cruelty_SNS_Report_Nov_2011_FINAL_110711.pdf

Lester, S. (1999). *An introduction to phenomenological research.* Retrieved from http://www.psyking.net/HTMLobj-3825/Introduction_to_Phenomenological_Research-Lester.pdf

Little, L. (2002). Middle-class mothers' perceptions of peer and sibling victimization among children with Asperger's syndrome and nonverbal learning disorders. *Issues in Comprehensive Pediatric Nursing*, *25*(1), 43-57. http://dx.doi.org/10.1080/014608602753504847

Lord, C., Rutter, M., DiLavore, P. C., Risi, S., Gotham, K., & Bishop, S. (2012). *Autism Diagnostic Observation Schedule: ADOS-2.* Torrance, CA: Western Psychological Services.

Loveland, K. A., Pearson, D. A., Tunali-Kotoski, B., Ortegon, J., & Gibbs, M. C. (2001). Judgments of social appropriateness by children and adolescents with autism. *Journal of Autism and Developmental Disorders, 31*(4), 367-376. http://dx.doi.org/10.1023/a:1010608518060

Mack, N., Woodsong, C., MacQueen, K. M., Guest, G., & Namey, E. (2005). *Qualitative research methods: A data collector's field guide.* Research Triangle Park, NC: Family Health International.

Madden, M., Lenhart, A., Duggan, M., Cortesi, S., & Gasser, U. (2013). *Teens and technology 2013.* Retrieved from http://www.pewInternet.org/files/old-media//Files/Reports/2013/PIP_TeensandTechnology2013.pdf

Mandy, W. P., Charman, T., & Skuse, D. H. (2012). Testing the construct validity of proposed criteria for DSM-5 autism spectrum disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 51*(1), 41-50. http://dx.doi.org/10.1016/j.jaac.2011.10.013

Martensson, A., & Martensson, P. (2007). Extending rigor and relevance: Towards credible, contributory and communicable research. *Proceedings of the Fifteenth European Conference on Information Systems.* St. Gallen, Switzerland: ECIS. Retrieved from http://aisel.aisnet.org/ecis2007/124

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Forum: Qualitative Social Research, 11*(3), 1-19.

Matson, J. L., Belva, B. C., Horovitz, M., Kozlowski, A. M., & Mamburg, J. W. (2012). Comparing symptoms of autism spectrum disorders in a developmentally disabled adult population using the current DSM-IV-TR diagnostic criteria and the proposed DSM-5 diagnostic criteria. *Journal of Developmental and Physical Disabilities, 24*(4), 403-414. http://dx.doi.org/10.1007/s10882-012-9278-0

Mazefsky, C., McPartland, J., Gastgeb, H., & Minshew, N. (2013). Brief report: Comparability of DSM-IV and DSM-5 ASD research samples. *Journal of Autism and Developmental Disorders, 43*(5), 1236-1242. http://dx.doi.org/10.1007/s10803-012-1665-y

Mazurek, M. O. (2013). Social media use among adults with autism spectrum disorders. *Computers in Human Behavior, 29*(4), 1709-1714. http://dx.doi.org/10.1016/j.chb.2013.02.004

Mazurek, M. O., Shattuck, P. T., Wagner, M., & Cooper, B. P. (2012). Prevalence and correlates of screen-based media use among youths with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42*(8), 1757-1767. http://dx.doi.org/10.1007/s10803-011-1413-8

Mazurek, M. O., & Wenstrup, C. (2013). Television, video game and social media use among children with ASD and typically developing siblings. *Journal of Autism and Developmental Disorders, 43*(6), 1258-1271. http://dx.doi.org/10.1007/s10803-012-1659-9

McKenna, K. Y. A., & Bargh, J. A. (2000). Plan 9 from cyberspace: The implications of the Internet for personality and social psychology. *Personality and Social Psychology Review, 4*, 57-75. http://dx.doi.org/10.1207/s15327957pspr0401_6

McNelles, L. R., & Connolly, J. A. (1999). Intimacy between adolescent friends: Age and gender differences in intimate affect and intimate behaviors. *Journal of Research on Adolescence, 9*(2), 143-159. http://dx.doi.org/10.1207/s15327795jra0902_2

McPartland, J., Reichow, B., & Volkmar, F. (2012). Sensitivity and specificity of proposed DSM-5 diagnostic criteria for autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *51*(4), 368-383. http://dx.doi.org/10.1016/j.jaac.2012.01.007

Mehari, K. R., Farrell, A. D., & Le, A. H. (2014). Cyberbullying among adolescents: Measures in search of a construct. *Psychology of Violence, 4*(4), 399-415. http://dx.doi.org/10.1037/a0037521

Messias, E., Castro, J., Saini, A., Usman, M., & Peeples, D. (2011). Sadness, suicide, and their association with video game and Internet overuse among teens: Results from the Youth Risk Behavior Survey 2007 and 2009. *Suicide and Life-Threatening Behavior, 41*(3), 307-315. http://dx.doi.org/10.1111/j.1943-278x.2011.00030.x

Morse, J. M. (1994). Designing qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative inquiry* (pp. 220-235). Thousand Oaks, CA: Sage.

National Center for Education Statistics. (2013). *Digest of education statistics: 2012*. Retrieved from http://nces.ed.gov/programs/digest/d12/ch_2.asp

Notar, C. E., Padgett, S., & Roden, J. (2013). Cyberbullying: A review of the literature. *Universal Journal of Educational Research, 1*(1), 1-9.

O'Keeffe, G. S., & Clarke-Pearson, K. (2011). The impact of social media on children, adolescents, and families. *Pediatrics, 127*(4), 800-804. http://dx.doi.org/10.1542/peds.2011-0054

Olweus, D. (2012). Cyberbullying: An overrated phenomenon? *European Journal of Developmental Psychology, 9*(5), 520-538. http://dx.doi.org/10.1080/17405629.2012.682358

Parker, I. (1994). Qualitative research. In P. Banister, E. Burman, I. Parker, I. et al., *Qualitative methods in psychology: A research guide* (pp. 3-27). Buckingham, England: Open University Press.

Parris, L. N., Varjas, K., & Meyers, J. (2014). "The internet is a mask": High school students' suggestions for preventing cyberbullying. *Western Journal of Emergency Medicine, 15*(5), 587-592. http://dx.doi.org/10.5811/westjem.2014.4.20725

Parris, L., Varjas, K., Meyers, J., & Cutts, H. (2012). High school students' perceptions of coping with cyberbullying. *Youth & Society, 44*(2), 284-306. http://dx.doi.org/10.1177/0044118x11398881

Patton, M. Q. (2002). *Qualitative research and evaluation methods.* Thousand Oaks, CA: Sage.

Percy, A. K. (2002). Rett Syndrome: Current status and new vistas. *Neurologic Clinics, 20*(4), 1125-1141. http://dx.doi.org/10.1055/s-2006-945998

Pierce, K., Glad, K., & Schreibman, L. (1997). Social perception in children with autism: An attentional deficit? *Journal of Autism and Developmental Disorders, 27,* 265-282. http://dx.doi.org/10.1023/a:1025898314332

Pietkiewicz, I., & Smith, J. A. (2012). Praktyczny przewodnik interpretacyjnej analizy fenomenologicznej w badaniach jakościowych w psychologii [A practical guide to using interpretative phenomenological analysis in qualitative research psychology]. *Czasopismo Psychologiczne, 18*(2), 361-369. http://dx.doi.org/10.14691/cppj.20.1.7

Prensky, M. (2001). Digital natives, digital immigrants: Part 1. *On the Horizon, 9*(5), 1-6. http://dx.doi.org/10.1108/10748120110424816

Price, M., & Dalgleish, J. (2010). Cyberbullying: Experiences, impacts and coping strategies as described by Australian young people. *Youth Studies Australia, 29,* 51-59.

Rhode Island Technical Assistance Project. (2013). *About ASD*. Retrieved from http://www.ritap.org/asd/about-asd

Rideout, V. (2012). *Social media, social life: How teens view their digital lives* [Research study]. Retrieved from https://www.commonsensemedia.org/research/social-media-social-life-how-teens-view-their-digital-lives

Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M2: Media in the lives of 8-18 year-olds.* Retrieved from http://files.eric.ed.gov/fulltext/ED527859.pdf

Rutter, M., LeCouteur, A., & Lord, C. (2003). *Autism Diagnostic Interview-Revised.* Los Angeles, CA: Western Psychological Services.

Schell, B. H., & Melnychuk, J. (2011). Female and male hacker conferences attendees: Their Autism-Spectrum Quotient (AQ) scores and self-reported adulthood experiences. *Corporate Hacking and Technology Driven Crime: Social Dynamics and Implications,* 144-169. http://dx.doi.org/10.4018/978-1-61350-323-2.ch505

Schouten, A. P., Valkenburg, P. M., & Peter, J. (2007). Precursors and underlying processes of adolescents' online self-disclosure: Developing and testing an "Internet-attribute-perception" model. *Media Psychology, 10*(2), 292-315. http://dx.doi.org/10.1080/15213260701375686

Schwartz, M. (2008, August 3). The trolls among us. *The New York Times.* Retrieved from http://www.nytimes.com/2008/08/03/magazine/03trolls-t.html

Shaw, L. H., & Gant, L. M. (2002). In defense of the Internet: The relationship between Internet communication and depression, loneliness, self-esteem, and perceived social support. *Cyber Psychology & Behavior, 5*(2), 157-171. http://dx.doi.org/10.1089/109493102753770552

Sleglova, V., & Cerna, A. (2011). Cyberbullying in adolescent victims: Perception and coping. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 5*(2), article 4. Retrieved from http://cyberpsychology.eu/view.php?cisloclanku=2011121901&article=4

Slonje, R., & Smith, P. K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology, 49*(2), 147-154. http://dx.doi.org/10.1111/j.1467-9450.2007.00611.x

Smart, J. (2011). *Disability across the developmental life span: For the rehabilitation counselor.* New York, NY: Springer.

Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method, and research.* London, England: Sage.

Smith, J. A., Flowers, P., & Osborn, M. (1997). Interpretative phenomenological analysis and health psychology. In L. Yardley (Ed.), *Material discourses and health* (pp. 68-91). London, England: Routledge.

Smith, J. A., & Osborn, M. (2008). Interpretative phenomenological analysis. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (2nd ed., pp. 53-80). London, England: Sage.

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry, 49*(4), 376-385. http://dx.doi.org/10.1111/j.1469-7610.2007.01846.x

Sterzing, P. R., Shattuck, P. T., Narendorf, S. C., Wagner, M., & Cooper, B. P. (2012). Prevalence and correlates of bullying involvement among adolescents with an autism spectrum disorder. *Archives of Pediatrics & Adolescent Medicine, 166*(11), 1058-1064. http://dx.doi.org/10.1001/archpediatrics.2012.790

Stewart, M., Barnfather, A., Magill-Evans, J., Ray, L., & Letourneau, N. (2011). An online support intervention: Perceptions of adolescents with physical disabilities. *Journal of Adolescence*, *34*(4), 795-800. http://dx.doi.org/10.1016/j.adolescence.2010.04.007

Sullivan, J. R. (2013). Skype: An appropriate method of data collection for qualitative interviews? *The Hilltop Review, 6*(1), 54-60.

Taheri, A., & Perry, A. (2012). Exploring the proposed DSM-5 criteria in a clinical sample. *Journal of Autism and Developmental Disorders, 42*(9), 1810-1817. http://dx.doi.org/10.1007/s10803-012-1599-4

Thacker, S., & Griffiths, M. D. (2012). An exploratory study of trolling in online video gaming. *International Journal of Cyber Behavior, Psychology, and Learning, 2*(4), 17-33. http://dx.doi.org/10.4018/ijcbpl.2012100102

Thede, L. L., & Coolidge, F. L. (2007). Psychological and neurobehavioral comparisons of children with Asperger's disorder versus high-functioning autism. *Journal of Autism and Developmental Disorders, 37*(5), 847-854. http://dx.doi.org/10.1007/s10803-006-0212-0

Tian, Q. (2013). Social anxiety, motivation, self-disclosure, and computer-mediated friendship: A path analysis of the social interaction in the blogosphere. *Communication Research, 40*(2), 237-260. http://dx.doi.org/10.1177/0093650211420137

Tidwell, L. C., & Walther, J. B. (2002). Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations: Getting to know one another a bit at a time. *Human Communication Research, 28*(3), 317-348. http://dx.doi.org/10.1111/j.1468-2958.2002.tb00811.x

Tressoldi, N. (2014). *Teens and gender on social media sites: Evaluating online behavior.* Retrieved from http://www.decodedscience.com/teens-gender-social-media-sites-evaluating-online-behavior/44935

Tsai, L. Y. (2012). Sensitivity and specificity: DSM-IV versus DSM-5 criteria for autism spectrum disorder. *American Journal of Psychiatry, 169*(10), 1009-1011. http://dx.doi.org/10.1176/appi.ajp.2012.12070922

Tudge, J. R., Mokrova, I., Hatfield, B. E., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory & Review, 1*(4), 198-210. http://dx.doi.org/10.1111/j.1756-2589.2009.00026.x

Underwood, M. K. (2003). *Social aggression among girls.* New York, NY: Guilford Press.

Valkenburg, P. M., & Peter, J. (2007a). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology, 43,* 267-277. http://dx.doi.org/10.1037/0012-1649.43.2.267

Valkenburg, P. M., & Peter, J. (2007b). Online communication and adolescents' well-being: Testing the stimulation versus the displacement hypothesis. *Journal of Computer Mediated Communication, 12*(4), 1169-1182. http://dx.doi.org/10.1111/j.1083-6101.2007.00368.x

Valkenburg, P. M., & Peter, J. (2009). Social consequences of the Internet for adolescents: A decade of research. *Current Directions in Psychological Science, 18*(1), 1-5. http://dx.doi.org/10.1111/j.1467-8721.2009.01595.x

Vandebosch, H., & Van Cleemput, K. (2008). Defining cyberbullying: A qualitative research into the perceptions of youngsters. *Cyber Psychology & Behavior, 11*(4), 499-503. http://dx.doi.org/10.1089/cpb.2007.0042

Van Roekel, E., Scholte, R. H., & Didden, R. (2010). Bullying among adolescents with autism spectrum disorders: Prevalence and perception. *Journal of Autism and Developmental Disorders, 40*(1), 63-73. http://dx.doi.org/10.1007/s10803-009-0832-2

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*(1), 3-43. http://dx.doi.org/10.1177/009365096023001001

Walther, J. B. (2011). Theories of computer-mediated communication and interpersonal relations. In M. L. Knapp & J. A. Daly (Eds.), *The Sage handbook of interpersonal communication* (pp. 443-479). Thousand Oaks, CA: Sage.

Willard, N. E. (2007). *Cyberbullying and cyberthreats: Responding to the challenge of online social aggression, threats, and distress.* Champaign, IL: Research Press.

Zablotsky, B., Bradshaw, C. P., Anderson, C. M., & Law, P. (2013). Risk factors for bullying among children with autism spectrum disorders. *Autism, 34*(1), 1-8. http://dx.doi.org/10.1177/1362361313477920

APPENDIX A: RECRUITMENT FLYER

Are you 12-18 years old with high-functioning autism who loves going online? I'd love to hear from you!

Who? **My name is Esther Ko, a PhD candidate at Indiana State University and I am looking for youth between the ages of 12-18 years of age, who have Asperger's Syndrome or High-Functioning Autism, and love going online (at least 3 times/week).**

What? **For my project I want to explore and understand the online experiences of youth with autism spectrum disorders. Your stories and opinions about the Internet will help me with my project.**

How? **By doing an interview with me! I will ask you questions about the types of activities you do on the computer and Internet, what you like/dislike about going online, and how these online experiences affect your everyday life.**

Where? **By Skype! So please make sure you can download the free Skype software and have access to the Internet, a webcam, and a microphone so we can have the interview.**

When? **Whenever it is best for you! The interview will last about 60 minutes and we can schedule the interview at a time works best for you.**

If interested, please ask your parent/guardian to contact me, Esther Ko, at sko@scyamores.indstate.edu or (812) 201-4426 for more information!

IRB Number: 612025
Date of IRB Approval: 7/7/2014
Project Expiration Date: 7/6/2015

APPENDIX B: CONSENT FORM

CONSENT TO PARTICIPATE IN RESEARCH

Online Experiences of Adolescents with Asperger's Syndrome and High-Functioning Autism

Your child is being asked to participate in a research study conducted by Esther Ko, M.Ed., and Dr. Linda Sperry, Ph.D., from the Department of Communication Disorders and Counseling, School, and Educational Psychology at Indiana State University. This study is being conducted to gather data for a doctoral dissertation. Your child's participation in this study is entirely voluntary. Please read the information below and ask questions about anything you do not understand, before deciding whether or not you will give permission for your child to participate.

Your child is being asked to participate in this study because he/she meets the following criteria for this study:

- Your child is an adolescent between the ages of 12 and 18.
- Your child has been formally diagnosed with Asperger's syndrome (AS) or High-Functioning Autism (HFA) by a trained clinician.
- Your child has sufficient experience with the Internet (he/she must typically access the Internet at least three times a week).
- Your child has access to the Internet and hardware/software necessary for a Skype interview.

• PURPOSE OF THE STUDY

The purpose of this study is to explore and understand the online experiences of ASD youth by identifying positive and negative aspects of computer and Internet usage from their perspective.

• PROCEDURES

If you grant your child permission to participate in this study, your child will be asked to complete an interview with me and will be asked questions about the types of activities he/she engages in on the computer and the Internet, what he/she likes or dislikes about going online, and how these online experiences affect his/her everyday life. I will also be asking questions related to his/her relationship with others online and offline, bullying, and cyberbullying. The project will be explained in terms that your child can understand, and your child will participate only if he/she is willing. The interview will last approximately 60 minutes and will be conducted over Skype at a time that is convenient for your child. Our conversation will be video-recorded via a

digital video recorder, to be transcribed afterwards to analyze for patterns or relationships in the data. All identifying information will be removed from the data collected for this study, a pseudonym will be assigned, and your child's real name will not be shared with anyone.

- **POTENTIAL RISKS AND DISCOMFORTS**

We do not expect that your child will experience any significant risks if he/she participates in this study. It is expected that any risks, discomforts, or inconveniences will be minor and not greater than minimal risk. Here is a list of potential minor risks which may occur from participation in this study:

- **Psychological risks:** If any interview questions result in psychological discomfort (i.e., your child may find it painful to discuss an interview question in which they have had a particularly negative experience), your child may refuse to answer the question. He/she may also end the session, reschedule to finish at a different time, or withdraw from the study at any time without penalty. I will also be available help your child seek additional support if necessary. A list of resources for counseling and support services in you and your child's city will be provided.

- **Physical risks:** The interview will last approximately 60 minutes and some youth may find this inconvenient, boring, or physically exhausting. Breaks will be offered to help accommodate your child's schedule and level of tolerance for long interviews. Your child may also complete the interview at a different time if necessary.

- **Privacy risks:** As with all online communications, there is a potential for online data to be hacked or intercepted. However, Microsoft's policy states that Skype "uses well-known standards-based encryption algorithms to protect Skype users' communications from falling into the hands of hackers and criminals. In so doing, Skype helps ensure user's privacy as well as the integrity of the data being sent from one user to another." Additional privacy concerns from the possibility of sending files through the Internet between the participant and the researcher will be minimized by using password protected files (password conveyed via phone conversation). All interview data, including recordings, transcripts, and notes will be stored in locked filing cabinet in the researcher's home office. Any other documents with identifying information will be locked in a separate filing cabinet. All data and forms will be destroyed three years after the end of the study.

- **POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

Your child might benefit from this study by enjoying having someone to talk to and listen to his/her opinions and experiences about the Internet. Your child's participation may result in a better understanding of the online experiences of adolescents with AS and HFA for the scientific and educational communities and help fill the gap in research on youth with ASD and the Internet.

- **CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with your child will remain confidential and will be disclosed only with your permission or as

required by law. While unlikely, it is noted that as with all activity on the internet, there is a possibility that a breach of confidentiality may occur through hacking. However, Microsoft's policy states that Skype "uses well-known standards-based encryption algorithms to protect Skype users' communications from falling into the hands of hackers and criminals. In so doing, Skype helps ensure user's privacy as well as the integrity of the data being sent from one user to another." To maintain confidentiality, the principal investigator will keep all data, including video recordings of interviews, locked in her home office. All data will be destroyed after approximately three years. The information your child shares with the principal investigator is confidential and will not be shared with anyone outside the dissertation committee (Dr. Linda Sperry, Dr. Leah Nellis, Dr. Ganapathy-Coleman, Dr. Breanna Gile), including his/her parents. There are three instances in which the information provided by your child may be disclosed: (1) if your child reveals that someone has been seriously hurting or abusing him/her, (2) if your child reveals he/she has made plans to seriously hurt him/herself, and (3) if your child reveals that he/she has made plans to seriously hurt someone else. In these cases, I will report these instances after my session with your child to either you or appropriate authority (i.e., Child Protective Services) depending on the situation (i.e., suicidal ideation vs. child abuse). When writing the dissertation, the principal investigator will change all identifying information, including the names of the participants and any other identifying information such his/her school name.

- **PARTICIPATION AND WITHDRAWAL**

You can choose whether to allow your child to participate in this study and you may withdraw (by contacting the researcher by email or phone) at any time without consequences of any kind or loss of benefits to which you and your child are otherwise entitled. Your child may also refuse to answer any questions he or she does not want to answer and may also choose not to participate or end the study at any time. There is no penalty if you withdraw from the study and you will not lose any benefits to which you or your child are otherwise entitled.

- **IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about this research, please contact:

Esther Ko, M.Ed.
Principal Investigator
(812) 201-4426
sko@sycamores.indstate.edu

Linda Sperry, Ph.D.
Faculty Sponsor
(812) 237-2832
linda.sperry@indstate.edu

- **RIGHTS OF RESEARCH SUBJECTS**

If you have any questions about your rights as a research subject, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-8217, or e-mail the IRB at irb@indstate.edu. You will be given the opportunity to discuss any questions about your rights as a research subject with a member of the IRB. The IRB is an independent committee composed of members of the University community, as well as lay members of the community not connected with ISU. The IRB has reviewed and approved this study.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to allow my child to participate in this study. I have been given a copy of this form.

_____
Printed Name of Subject

_____ _____
Signature of Subject Date

IRB Number: 612025
Date of IRB Approval: 7/7/2014
Project Expiration Date: 7/6/2015

APPENDIX C: ASSENT FORM

ASSENT TO PARTICIPATE IN RESEARCH

Online Experiences of Adolescents with Asperger's Syndrome and High-Functioning Autism

1. My name is Esther Ko. I am from Indiana State University.

2. I am asking you to take part in a research study because we are trying to learn more about how youth with Asperger's Syndrome (AS) or High-Functioning Autism (HFA) use the Internet and computers.

3. If you agree to be in this study, I will interview you about your online experiences via Skype. I will ask you questions such as the type of activities you do on the Internet and computer, what you like or dislike about going online, and how these online experiences affect your everyday life. The interview will last about 60 minutes and will be video recorded. Only two people will be able to listen or see to these recordings, myself and my dissertation chairperson, Dr. Linda Sperry. Dr. Sperry is a professor at Indiana State University.

4. We do not think that you will experience any major risks if you participate in this study. But, it is possible that you may suddenly think of something that makes you angry or sad while you are sharing your opinions and thoughts with me and you might become upset from thinking about those things. If you were to get upset, I will help you think about something more positive. If you seem depressed or extremely anxious, I will encourage you to meet with a counselor and can help you find one if necessary. The interview will last about 60 minutes, and some youth may find this inconvenient or boring. We can take breaks in between the interview or continue the interview at a different time if you feel tired or have somewhere you need to go.

5. You might benefit from this study by enjoying having someone to talk to and listen to your opinions and experiences about the Internet. Sometimes, just talking to someone will make people feel happy. After I have finished the study, I will write a research paper about your experiences. I will change the names and places, so no one will know who I am writing about. This paper might help people such as psychologists, parents, or teachers, have a better understanding of how the Internet can be helpful (or not helpful) in the everyday lives of youth with AS or HFA.

IRB Number: 612025
Date of IRB Approval: 7/7/2014
Project Expiration Date: 7/6/2015

6. Please talk this over with your parents before you decide whether or not to participate. Your parents have given their permission for you to take part in this study. Even though your parents said "yes," you can still decide not to do this.

7. If you don't want to be in this study, you don't have to participate. Remember, being in this study is up to you and no one will be upset if you don't want to participate or even if you change your mind later and want to stop. Also, if there are any questions during the interview you do not want to answer, you can choose not to answer them. Any information you share that can be traced back to you will remain between us and my dissertation committee, with a few exceptions. If you share that others have seriously hurt/abused you or that you seriously want to hurt yourself or others, I may share that information with your parents or other authorities because I want to keep you safe.

8. You can ask any questions that you have about the study. If you have a question later that you didn't think of now, you can call me at (812) 201-4426 or ask me next time.

9. Signing your name at the bottom means that you agree to be in this study, and you understand these interviews will be video recorded. I will ask for your permission to continue before we begin the interview to make sure you still want to be a part of this study. If you do not agree to continuing, you will not have to complete the interview. You and your parents will be given a copy of this form after you have signed it.

_____

Signature of Subject

_____ _____

Printed Name of Subject Date

IRB Number: 612025
Date of IRB Approval: 7/7/2014
Project Expiration Date: 7/6/2015

APPENDIX D: INTERVIEW SCHEDULE

Background Information

1. Participant Information:
    a. How old are you?
    b. How would you describe yourself as a person? (For example, are you an outgoing person? A nervous person?)
    c. What grade are you in? Where do you go to school?
    d. Do you like school? What do you like/dislike about school?
    e. What are some things you like to do in your spare time?
    f. What are some things you are good at? What are some things you wish were better at?
2. Computer and Internet Usage:
    a. When did you first start using the computer? When did you first start using the Internet?
    b. What do you use the computer for? What do you use the Internet for?
    c. Where do you use the Internet most often? (For example, home or school?) What other places do you use the Internet?
    d. How do you access the internet? What other devices do you use to access the internet?

IRB Number: 612025
Date of IRB Approval: 7/7/2014
Project Expiration Date: 7/6/2015

e. Do you have a computer/laptop in your room? Do you have access to the Internet in your room?

f. What kinds of computer programs do you use?

g. What websites do you visit most often?

h. How many times/hours a week do you use the computer? How many times/hours a week do you use the Internet?

i. How "tech-savvy" (good at using the computer and Internet) are you? Below average (need help using basic programs, accessing the Internet), average (can use programs and the Internet without help), above average (knows how to solve/find ways to solve problems with the computer/Internet)

j. Do your parents in any way monitor your computer/Internet usage?

k. Overall, do you think the Internet is good or bad?

Interview Questions

1. If you had to describe what the computer and the Internet means to you, what would you say?
2. Thinking about all the different ways you use the computer and Internet, please describe a situation in which you had a positive experience on the Internet.
    a. Why was that a positive experience?
    b. How did the experience make you feel?
3. Please describe a situation in which you had a negative experience on the Internet.
    a. Why was that a negative experience?
    b. How did that make you feel?
    c. What could have improved that situation?

IRB Number: 612025
Date of IRB Approval: 7/7/2014
Project Expiration Date: 7/6/2015

4. How would you describe yourself online compared to yourself offline?
    a. Does being online make a difference in how you see yourself?
    b. What about the way other people see you?
5. Have your online relationships affected your relationships offline? How have your offline relationships affected your online relationships?
6. What aspects of the Internet make your relationships easier or harder to maintain?
7. Have you had any experiences with cyberbullying? If you have, please describe what happened.
8. Do you think bullying is always wrong? Do you think the victim is always right?
9. How does using the computer and Internet influence your everyday life?
    a. School?
    b. Interests?
    c. Friendships/relationships?

IRB Number: 612025
Date of IRB Approval: 7/7/2014
Project Expiration Date: 7/6/2015