

St. Catherine University

SOPHIA

Master of Social Work Clinical Research Papers

School of Social Work

5-2014

Visual Media and ASD: Impact on Social Interactions of Adolescents

Audra J. Hanly
St. Catherine University

Follow this and additional works at: https://sophia.stkate.edu/msw_papers



Part of the [Social Work Commons](#)

Recommended Citation

Hanly, Audra J.. (2014). Visual Media and ASD: Impact on Social Interactions of Adolescents. Retrieved from Sophia, the St. Catherine University repository website: https://sophia.stkate.edu/msw_papers/324

This Clinical research paper is brought to you for free and open access by the School of Social Work at SOPHIA. It has been accepted for inclusion in Master of Social Work Clinical Research Papers by an authorized administrator of SOPHIA. For more information, please contact amshaw@stkate.edu.

Visual Media and ASD:
Impact on Social Interactions of Adolescents

by

Audra J Hanly, MSW, LGSW

MSW Clinical Research Paper

Presented to the Faculty of the
School of Social Work
St. Catherine University and the University of St. Thomas
St. Paul, Minnesota
in Partial fulfillment of the Requirements for the Degree of
Master of Social Work

Committee Members
Abel Knochel, Ph.D., MSW, LGSW (Chair)
Kent E. Rhein, MSW, Ed.S., LICSW
Hannah Cushing, MA.E.

The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

Abstract

There's a wealth of research that provides evidence of an association between visual media and behavior problems among typically developing children. However, no research was located that examines the association between these variables in adolescents with ASDs. This current study begins to fill this gap in literature while examining possible positive effects of visual media on social behavior through the following research question: What effect does visual media have on the social interactions of adolescents with autism spectrum disorders? The design of the present study was a cross-sectional, quantitative study in which twenty participants completed an online questionnaire.

The present study found that adolescents with ASDs who had high language skills more frequently interacted with peers than adolescents with low language skills. This study also found that of adolescents who engage in visual media use weekly or more, 90% play video games, 85% use computers, 80% engage with Apps (via iPad/iPod/Kindle), 75% watch television, 35% use social media and 25% engage with other forms of visual media (DVDs, DS, and using iPad for Wikipedia) which is more than twice as often as another study (Mazurek et al., 2011). This study also showed that adolescents with ASDs who frequently use the computer have fewer interactions about visual media with their siblings.

Future research should continue to explore the relationship between visual media and the social interactions of adolescents with ASDs. Interventions using visual media with adolescents with ASDs to help improve their social interactions, should be explored by social workers and other mental health professionals as an intervention.

Acknowledgements

I would like to thank the chair of my research committee, Dr. Abel Knochel, for such incredible support, insight, and guidance throughout this research process. The knowledge and expertise Abel possesses was extremely valuable in enabling me to execute this study and I would have been lost without the guidance.

I am also extremely grateful to my research committee members, Hannah Cushing and Kent Rhein, for their constructive feedback throughout this process. Their experience in the field helped aid me in times of doubt and provided clarity where I lost focus.

A heartfelt thanks to my St. Catherine University/University of St. Thomas School of Social Work AS1 family for your support and encouragement throughout this journey. You have truly become my family and this process would not have been possible without each and every one of you.

Most importantly, I could like to thank my husband, Dustin, who has been my rock through this whirlwind experience. You have provided me with an overwhelming amount of love, support and inspiration as I have navigated through my graduate education. You have given me the courage to persevere and the faith to prevail, and for that I am exceedingly grateful.

Table of Contents

Abstract	i
Acknowledgements	ii
Table of Contents	iii
List of Figures and Tables	v
Introduction	1
Literature Review	3
Visual Media and Negative Impacts	
Visual Media and Positive Impacts	
Media Use and Autism	
Individuals with ASD and Social Activities	
High-Preference Stimuli as a Reinforcer	
Intervention Approaches	
Specific Aim	
Conceptual Framework	15
Methods	17
Research Design	
Sample	
Protection of Human Subjects	
Data Collection Instrument and Process	
Data Analysis	
Findings	22
Relationship between Language Skills and Interactions with Peers	

Frequency of Engagement in Visual Media	
Skills Used in Interactions with Others	
Relationship between Visual Media and Interactions	
Qualitative Themes	
Discussion	37
Interactions with Siblings	
Ties to Conceptual Framework	
Language Skills and Interactions with Peers	
Frequency of Visual Media Use	
Social Interaction Skills	
Implications	40
Implications for Practice	
Implications for Policy	
Implications for Future Research	
Strengths and Limitations	43
Conclusion	43
References	44
Appendix A. Permission from Autism Society of Minnesota	48
Appendix B. Form of Consent	49
Appendix C. Social Interactions and Visual Media Survey (SIVMS)	51
Appendix D. Recruitment Protocol	55
Appendix E. Data Analysis Plan: List of Statistical Tests	56

Figures and Tables

Figure 1: Albert Bandura’s Social Learning Theory	16
Table 1: Language Skills and Interactions with Peers Crosstab	22
Table 2: Language Skills and Interactions with Peers Chi-Square	23
Table 3: Frequency of Video Game Use	24
Table 4: Frequency of Computer Use	24
Table 5: Interaction Skills with Others	25
Table 6: Peer Interactions and Television Use Group Statistics	27
Table 7: Peer Interactions and Television Use T-Test	27
Table 8: Peer Interactions and Video Game Use Group Statistics	28
Table 9: Peer Interactions and Video Games Use T-test	29
Table 10: Peer Interactions and Computer Use Group Statistics	30
Table 11: Peer Interactions and Computer Use T-test	30
Table 12: Sibling Interactions and Television Use Group Statistics	31
Table 13: Sibling Interactions and Television Use T-test	32
Table 14: Sibling Interactions and Video Game Use Group Statistics	33
Table 15: Sibling Interactions and Video Game Use T-test	33
Table 16: Sibling Interactions and Computer Use Group Statistics	34
Table 17: Sibling Interactions and Computer Use T-test	35

Visual Media & ASD: Impact on Social Interactions

Autism Spectrum Disorders (ASDs) are a range of complex developmental disorders characterized by significant impairment in communication and social interaction, and the presence of repetitive body movements or behaviors (American Psychiatric Association, 2012). The Center for Disease Control and Prevention (2014) identifies 1 in 68 American children as on the autism spectrum. This estimated ASD prevalence increased 78% between 2002 and 2008 (CDC, 2012). As a result of the increase, opportunities for greater public awareness have developed and greater attention has turned toward effective teaching approaches of children and adolescents with this diagnosis (Autism Society, 2013; Shane & Albert, 2008).

Emerging research has shown that children and adolescents with ASDs have limited participation in social and community activities, and are at an increased risk for difficulties regulating their behavior and attention, which may exacerbate long-term functional difficulties (Mazurek & Engelhardt, 2013; Mazurek & Wenstrup, 2012). Orsmond, Krauss & Seltzer (2004) found that in 50% of their research sample, individuals with autism reported having no peer relationships outside of pre-arranged settings (such as school, work, or other arranged social groups). Koegel, Fredeen, Kim, Danial, Rubinstein & Koegel (2012) suggest this lack of socialization is correlated with the fact that adolescents with ASDs are at higher risk for developing depressive symptoms and report to be lonelier than their typical peers.

Individuals with ASDs typically display strong visual skills accompanied by an impairment in verbal skills. Visual supports are commonly used with individuals with ASDs as a means of communication, such as pictures, sign language and speech-

generating devices (Autism Speaks, 2013). The use of visual materials extends to an interest in characters, events, action and sound that appear on television, movie screens, computer screens and video games (Shane & Albert, 2008). Mazurek & Wenstrup (2012) note that preoccupation with media, such as television, video games, computer games and electronic social media, appears to be a clinically significant problem for many individuals with ASDs.

For the purpose of this study, the term “visual media” will be used to encompass the following terms/forms of this type of media: television and movies, video games, computer games, video based media, electronic screen-based media. The use of visual media, such as video games, television and computers, has become a normative leisure activity for children and adolescents (Durkin, Boyle, Hunter & Conti-Ramsden, 2013; Mazurek & Wenstrup, 2012). An abundance of research has been completed that provides evidence of an association between visual media and behavior problems among typically developing children (Mazurek & Englehardt, 2013). However, no research was located that examines the association between these variables in adolescents with ASDs. Recent studies have found that incorporating highly preferred perseverative interests of individuals with ASDs, as a theme of social activities, resulted in increased and improved engagement with typically developing peers (Koegel et al., 2012; Baker, Koegel & Koegel, 1998). Shane & Albert (2008) state that many professionals and parents recognize the use of visual media (television, movies, computer activities, video games) as a favorite activity among individuals with ASDs. Furthermore, studies on the positive effects of visual media on social behavior are exceedingly rare, particularly with individuals on the autism spectrum (Greitemeyer & Osswald, 2010). This current study

will begin to fill this gap in literature while examining possible positive effects of visual media on social behavior.

Social workers are frequently members of a treatment team for individuals with ASD. This can be in a school setting as a member of the educational team, as a provider of mental health services in a private setting, as a case manager at the county level, or as a member of an assessment team. Social workers on the team typically provide a range of interventions teaching social skills to individuals with ASDs. Therefore, it is vital for social workers to understand the positive and negative effects visual media may have on social behavior of individuals with ASDs. Such information could help guide interventions related to social skills and/or behavior.

Literature Review

Visual Media and Negative Impacts

Numerous studies have shown a relationship between exposure to violent media and violent behavior. Recently, the relationship between violent visual media and negative and/or violent behavior, in children and adolescents, has been explored. Mazurek and Engelhardt (2013) suggest there is a causal relationship between short- and long-term exposure to visual media and increases in aggressive thinking, aggressive affect, and aggressive behavior. Other studies suggest that exposure to violent visual media not only causes an increase in antisocial behavior, but also leads to a decrease in prosocial behavior (Greitmeyer & Osswald, 2010), lower school performance, increased aggression, attention problems, and externalizing behavior (Hastings, Karas, Winsler, Way, Madigan & Tyler, 2009). Prosocial behavior is defined as “positive actions that benefit others, prompted by empathy, moral values, and a sense of personal responsibility

rather than a desire for personal gain” (Kidron & Fleischman, 2006, p. 90). When participating in violent visual media, children observe aggression and are rewarded for acting aggressively; over time, these children learn that violence is a likely occurrence in the world and that aggression is an appropriate response to events (Hastings, et al., 2009). Greitmeyer & Osswald (2010) suggest that visual media may have an even greater negative impact on social behavior than television because of their increasing popularity among youth.

Visual media research has shifted from exploring visual media use as a cause of aggression to exploring behavioral addiction as a result of visual media use. Behavioral addiction is described as feeling a compulsion/constant need to engage in a certain behavior, such as playing video games. Mazurek & Engelhardt (2013) found significant positive relationships between problematic visual media use and both inattention and oppositional symptoms. Chan and Rabinowitz (2006) as cited by Mazurek & Engelhardt (2013) found that adolescents who spent more than one hour per day playing video games had significantly greater symptoms of inattention and hyperactivity, and greater symptoms of behavioral addiction.

Only recently has this phenomenon been slightly examined in individuals with ASDs. Mazurek & Engelhardt (2013) note that visual media use has been anecdotally associated with problem behaviors by many parents of children with ASDs and it appears that children with ASDs are at an increased risk for problematic patterns of visual media play. Along with this risk, the following problems were found to be common among individuals with ASDs in relation to visual media: spending more time playing video games than socializing, thinking life would be boring without video games, thinking

about video games even when not playing, feeling upset when not able to play, and having trouble disengaging or stopping from playing (Mazurek & Wenstrup, 2012). Similarly, Shane & Albert (2008) found that nearly one-third of parents reported that their child with ASDs exhibited distress, to some extent, if media was present in the room but not turned on.

The pathway from media violence to aggressive behavior is thought to have cognitive, affective, and social components and may incorporate both immediate and long-term influences (Hastings et al., 2009). However, Greitmeyer & Osswald (2010) suggest that visual media also have the potential to be part of the solution to shaping behavior.

Visual Media and Positive Impacts

As described in the previous section, research has shown that exposure to violent visual media increases negative behavior and decreases prosocial behavior (Greitmeyer & Osswald, 2010; Hastings et al., 2007; Mazurek & Engelhardt, 2013). Prosocial behavior is defined as “positive actions that benefit others, prompted by empathy, moral values, and a sense of personal responsibility rather than a desire for personal gain” (Kidron & Fleischman, 2006).

Contradictory to findings that violent visual media increase negative behavior, Greitmeyer & Osswald (2010) found that playing visual media could positively affect social behavior, which they explained using the same theoretical system of social learning theory. Mares & Woodard (2005) support this notion with findings from a study of visual media usage stating that “children who watched prosocial content behaved significantly more positively or held significantly more positive attitudes than others”

(p.318). The similarities between video watching and video game playing are sufficient to suggest this may hold true for visual media use.

Greitmeyer & Osswald (2010) explicitly note that visual media with prosocial content may be used to improve social interactions of typically developing individuals. Although there is minimal research on this notion, it has been suggested that visual media may have the potential to enhance interventions and social engagement (Mazurek & Wenstrup, 2012), as well as the potential to foster positive social interactions, reduce aggression, and encourage viewers to be more tolerant and helpful (Mares & Woodard, 2005).

Hopkins et al., (2011) noted that children with ASDs demonstrated growth in social interaction behaviors and significant decreases in negative behaviors after using visual media used to enhance social skills. One study declared that many adolescents with special needs prefer to engage in visual media use with peers, and games form a common focus of peer discussions (Durkin, Boyle, Hunter & Conti-Ramsden, 2013). In further research, Durkin et al., (2013) noticed that participants with ASDs who participated in visual media use with friends on any given day reported more positive friendship qualities and greater companionship.

Studies find that visual media may also provide individuals with a variety of positive skills (Durkin et al., 2013; Rayner, Denholm & Sigafos, 2009; Nally, Houlton & Ralph, 2000). Visual media use can enhance spatial skills and promote communication, self-confidence and self-esteem (Durkin et al., 2013). Visual media use can also facilitate self-help and social skills through working collaboratively (Durkin et al., 2013), positive generalization for social-communicative behaviors, functional living

skills and perspective taking (Delano, 2007, as cited in Rayner et al., 2009). Furthermore, Nally et al., (2000) found that children with ASDs had developed some verbal skills directly from watching videos. It is important to note that, for individuals who find learning especially challenging, identifying positive practices can set the scene for active engagement and active learning (Durkin et al., 2013).

Media Use and Autism

Children with ASDs have a strong preference for visual media, particularly television and video games (Mazurek & Wenstrup, 2012, p.1265). This interest in visual material extends to characters, events, actions and sounds that appear on television or movie screens and computer monitors (Shane & Albert, 2008). In studies among individuals with ASDs and restricted interests, visual media use such as watching television and playing video games are often specifically excluded from analysis because these appeals are considered to commonly occur among typically developing children (Klin et al., 2007 as cited by Mazurek, Shattuck, Wagner & Cooper, 2011). Shane & Albert (2008) show that 66% of children with ASDs reported a clear preference for animated programs; 89% of the respondents indicated a preference toward cartoon-type movies while only 11% indicated a preference for media having a human character representation. In children with ASDs, their special characteristics (such as the presence of repetitive behaviors, strong visual skills and unique sensory experiences) may have an impact on their experiences with games, the patterns of their play, the kinds of games they select, and what they gain from the activity (Durkin et al., 2013).

Breaking down visual media use more specifically, Marshall, Gorely & Biddle (2005) found that most young people watch approximately 2 – 2.5 hours of television

each day, and those with access to computers and video games, spent an additional 0.5 – 0.75 hours per day using these media. Twenty-eight percent of the young people in the Marshall, Gorely, & Biddle (2005) study engaged in more than 4 hours a day of visual media. By comparison, children with ASDs were reported to spend an average of 4.5 hours per day using visual media (Mazurek & Wenstrup, 2012). These children also spent approximately 62% more time engaged in visual media than engaging in non-screen activities (i.e. reading, spending time with friends, and engaging in physical activities) (Mazurek & Wenstrup, 2012). One study showed that 60.3% of youth with ASDs were reported to spend most of their free time watching television or videos, and 41.4% spent most of their free time playing video games (Mazurek et al., 2011). Another study showed that children and adolescents with ASDs spent significantly greater amounts of time engaged in visual media than typically developing peers, but significantly less time engaged in academic, physically active or social activities (Mazurek & Wenstrup, 2012).

Interestingly, more than one-half of the families reported use of visual media as a leisure time activity, and more than one-third considered this media to be an educational tool in a study of visual media use in persons with Autism Spectrum Disorders (Shane & Albert, 2008, p.1506). Nally, Houlton & Ralph (2000) learned that some parents felt that their child's visual media use could yield useful diagnostic information. Individuals with ASDs have relatively strong visual processing skills and a preference towards visual media; thus, it is likely that the dissemination of intervention via visual media would be particularly appropriate and motivating for these individuals (Shane & Albert, 2008). "While instructional video modeling is one effective way to teach skills to individuals with ASDs, the current potential of technology extends far beyond simple video

modeling to areas such as interactive computer programs and virtual reality” (Wainer & Ingersoll, 2011, p. 97).

In their study, Shane & Albert (2008) found that more than half of the children with ASDs performed some form of imitation – verbal or physical – while viewing movies or television programs. Video games may also provide an appealing medium for the delivery of aids to learning and communication (Durkin et al., 2013). Results from Wainer & Ingersoll’s (2011) study suggest that computerized programs may also be effective for teaching social skills and social understanding to individuals with ASDs. Stimulating features, present in visual media, may be especially beneficial for learners with ASDs given their relative strengths in visual processing and strong motivation for visual media (Rayner et al., 2009; Shane & Albert, 2008; Wainer & Ingersoll, 2011). Visual media programs have the potential to successfully teach important skills to many individuals in this population (Wainer & Ingersoll, 2011), and any technology that could teach necessary social skills to individuals with ASDs would be invaluable (Hopkins et al., 2011).

Individuals with ASD and Social Activities

A variety of studies indicate minimal participation in peer activities among adolescents with ASD. These adolescents often experience major obstacles to social participation (Shattuck, Orsmond, Wagner & Cooper, 2011). Research shows that difficulty developing and maintaining friendships persists well into adulthood for individuals with autism (Orsmond, Krauss & Seltzer, 2004). Orsmond et al. (2004) report that almost half (46.4%) of their participants reported no peer relationships with a same

aged friend with whom they engaged with in varied, mutually responsive and reciprocal activities outside of organized settings.

Orsmond et al. (2004) found that only 20.9% of adolescents and adults with ASDs participated at least weekly in informal socializing activities with friends, while 13.3% socialized at least weekly with people from school or work, and 22.6% with relatives. The most common activity was walking or getting exercise (74.5%), and almost half engaged in a hobby on a weekly basis; importantly, all of these recreational activities can be pursued independently, without companions or friends (Orsmond, Krauss, & Seltzer, 2004). Shattuck et al. (2011) also found that in individuals with ASDs, half experience no or very limited social activities with friends and only one-third participate in social activities in the community with peers. Minimal participation with peers or in peer activities may be explained as a common characteristic of ASDs. However it may also be explained by the amount of time spent engaged in visual media activities. Shane and Albert (2008) found that children with ASDs who spent three or more hours a day engaged in visual media use tended to do so at the exclusion of other leisure time activities.

The low rate of social activities and interactions with friends and other peers has been shown to be associated with low communication skills. Shattuck et al. (2011) associate a lower likelihood of social participation with conversational impairment and low social communication skills. They note that “conversational impairment was associated with higher odds of friends never calling, never being invited to activities, and having no involvement in extracurricular activities” (Shattuck et al., 2011, p. 8). These findings emphasize that impairments in social communication are a core challenge for

adolescents with an ASD and these challenges are strongly associated with a wide range of social participation outcomes (Shattuck et al., 2011). Of the individuals who participated in activities with peers, their friendships were often focused on common and circumscribed interests with little social interaction involved, such as a particular hobby (Orsmond, Krauss, & Seltzer, 2004).

High-Preference Stimuli as a Reinforcer

Repetitive body movement or repetitive behavior is a core characteristic of ASDs (APA, 2012). Repetitive behaviors can take the form of intense preoccupations or obsessions (Autism Speaks, 2013). Baker et al. (1998) notes that the obsession themes of children with autism, which can be typically be viewed as problematic, have the potential to be transformed successfully into common games to increase positive social play interactions between children with autism and their peers. Studies have found that incorporating obsession themes/perseverative interests into the activities of children with an ASD has helped motivate and increase social interactions and engagement with peers (Baker et al., 1998; Koegel et al., 2012).

A study by Koegel et al. (2012) demonstrated that creating a club, incorporated with the perseverative interest of the individuals with an ASD, significantly improved social interactions between the individual with an ASD and their peers by providing a common ground on which they could communicate. Similarly, in the Baker et al. (1998) study, incorporating the obsession themes of children with autism into common games, resulted in the children with autism being viewed as socially more competent due to their expertise related to the obsessive theme incorporated in the game. These results were consistent with the suggestion that the competence of children during social interaction,

and not the fact that they have a disability, is the key variable to improving social relationships with peers (Guralnick, 1990 as cited in Baker et al., 1998). Studies have found that participants whose obsessive interests were turned into common games interacted more socially with siblings (Baker et al., 1998) and were able to stay engaged with peers and make spontaneous and unprompted initiations (Koegel et al., 2012).

As previously described, studies have shown that incorporating obsession themes and perseverative interests into activities increases social interactions with peers (Baker et al., 1998; Koegel et al., 2012). These perseverative interests are also widely used as positive reinforcement (Mechling, Gast & Cronin, 2006; Wainer & Ingersoll, 2011). Mechling, Gast & Cronin (2006) suggest that motivation for individuals with ASD to complete tasks appears to have been enhanced through the use of visual media reinforcement. This study reports that providing students with an opportunity to view high-preference items and activities via visual media technology may be a viable means of providing highly preferred stimuli that can function as positive reinforcement (Mechling, Gast & Cronin, 2006). Wainer & Ingersoll (2011) also noted in their study that the use of computers as an intervention program was considered rewarding. These studies suggest positive implications for visual media based interventions that are aimed at increasing peer relationships and participation in social activities in persons with autism (Baker et al., 1998; Koegel et al., 2012; Mechling, Gast & Cronin, 2006; Orsmond et al., 2004; Wainer & Ingersoll, 2011).

Intervention Approaches

In most areas of research on ASDs, much less is known about how to intervene with adolescents (Shattuck et al., 2011) compared to children. “With greater public

awareness, stronger diagnostic indicators and earlier identification of features among children with ASDs, greater attention has turned toward effective teaching approaches for children with this diagnosis” (Shane & Albert, 2008, p.1499). The motivation to interact with visual media, combined with their observed imitative behaviors, suggest that concept development and social skills could be taught using preferred components of media that excite individuals with ASDs (Shane & Albert, 2008).

Clinicians may be able to maximize motivation and engagement by incorporating visual media based technologies into interventions (Mazurek & Wenstrup, 2012).

Although real-life practice remains the most important part of social skills training, incorporating visual media technologies, through the use of video games, computer, or other screen-based media, may be an effective reinforcer that can be built into intervention programs to increase positive behaviors, maximize motivation and enhance social communicative competence in adolescents with ASDs (Hopkins et al., 2011; Mazurek & Wenstrup, 2012).

Specific Aim

Numerous studies have shown a relationship between exposure to violent visual media and violent behavior. Mazurek & Engelhardt (2013) note that children with ASDs are at an increased risk for problematic patterns of visual media use, and visual media use has been associated with problem behaviors by many parents of children with ASDs. Social learning theory is applied to most of the research explaining the relationship between violent media and violent behavior. More recently, research has started to apply social learning theory to illustrate that exposure to prosocial media could positively affect social behavior (Greitmeyer & Osswald, 2010). Social learning theory holds that peoples

conceptions, behavior and environments each influence and are each influenced by one another (Bandura, 1978; Miller, 1993).

Individuals with ASDs have a strong preference for visual media, particularly television and video games (Mazurek & Wenstrup, 2012). Studies have recently shown that incorporating these high-preference interests into activities can increase peer relationships and participation in social activities with peers (Baker et al., 1998; Koegel et al., 2012; Mechling, Gast & Cronin, 2006; Orsmond et al., 2004; Wainer & Ingersoll, 2011). This is particularly promising information considering that studies have shown that half of adolescents with ASDs experience no or very limited social activities with friends (Shattuck et al., 2011), and this difficulty with developing and maintaining friendships persists well into adulthood for individuals with autism (Orsmond et al., 2004). The motivation to interact with visual media, combined with their observed imitative behaviors, suggest that concept development and social skills could be taught using preferred components of media that excite individuals with ASDs (Shane & Albert, 2008).

This current research examines visual media and social interactions of adolescents with autism spectrum disorders through the following research question: What effect does visual media have on the social interactions of adolescents with autism spectrum disorders? The hypotheses for this study are: 1) There is an association between language skills and interactions with peers, 2) There is an association between the frequency of visual media use and interactions with others (i.e. an adolescent who engages in visual media use at least weekly will have more high-level interactions with others that are about visual media), and 3) An adolescent who engages in visual media use at least

weekly will have more interactions with others that are about visual media than adolescents who less frequently use visual media.

Conceptual Framework

Prior research has been conducted on the relationship between visual media, particularly video games and television, and behavior. Such research has utilized the social learning theory as a basis for explaining the correlations between violence in the media and violent behavior as well as prosocial media content and prosocial behavior (Mazurek and Engelhardt, 2013; Greitmeyer & Osswald, 2010). This study will also use the social learning theory to examine the relationship between social interactions and visual media use.

Bandura's social learning theory states that peoples conceptions, behavior and environments each influence and are influenced by one another (Bandura, 1978; Miller 1993). Bandura states that,

“In their transactions with the environment, people are not simply reactors to external stimulation. Most external influences affect behavior through intermediary cognitive processes. Cognitive factors partly determine which external events will be observed, how they will be perceived, whether they have any lasting effects, what valence and efficacy they have, and how the information they convey will be organized for future use” (1978, p.345).

Social learning theory views people as active agents in their environments; individuals are neither powerlessly controlled by environmental forces nor free to do whatever they choose (Bandura, 1978; Miller, 1993).

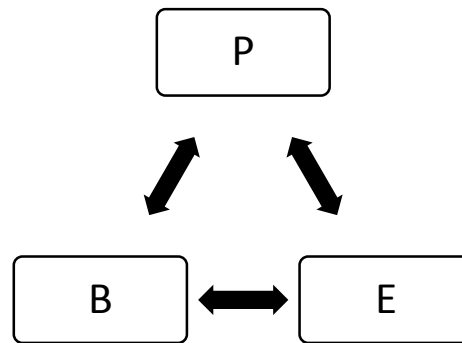


Figure 1. Albert Bandura's Social Learning Theory (Bandura, 1978, p. 345).

B signifies behavior, **P** the cognitive and other internal events that can affect perceptions and actions, and **E** the external environment.

Bandura (1978) also asserts that, “by altering their immediate environment, by creating cognitive self-inducements, and by arranging conditional incentives for themselves, people can exercise some influence over their own behavior” (p.345). This theory recognizes that an individual's behavior affects, and in a sense creates, their environment (Miller, 1993). For example, a child may become skilled at playing video games and discover that this accomplishment earns the respect and admiration of their peers. He, in turn, starts to view himself as a good game player and begins to expect success and social reinforcement from this activity. The sense of reinforcement is that it provides information about what effect their behavior has in the environment ($E \rightarrow P$, $E \rightarrow B$) (Bandura, 1978; Miller, 1993, p.198).

Furthermore, Miller (1993) reports that in the social learning theory, experience with the social world causes development. According to Miller (1993), children acquire a repertoire of behaviors, learn the appropriate situations for these behaviors, receive reinforcement by others, and thus become motivated to perform them. She also notes that drawing attention to the positive aspects of their performance can increase the prominence of those behaviors (Miller, 1993).

This study was conducted within the conceptual framework that visual media, as a motivating interest, has an effect on the social interactions of adolescents with autism spectrum disorders. This research used social learning theory to explore the relationship between visual media and social interactions of adolescents with ASDs.

Methods

Research Design

This study examined the effect visual media has on the social interactions of adolescents with autism spectrum disorders. This was done by posting an online survey for parents/guardians of adolescents with ASDs on the Autism Society of Minnesota's website, and also by posting a link to the survey on a select number of Facebook groups whose members are parents/guardians of a child with an ASD (Appendix D). The survey included open ended and closed ended questions that focus on visual media, usage of visual media and the function of this media in each adolescent's daily life and with their peers and other conversational partners.

Sample

The population of interest for this project was adolescents (ages 12-18) with autism spectrum disorders. The researcher used a non-probability, convenience sampling frame of parents or guardians of 12-18 year olds with an ASD who are either members of the Autism Society of Minnesota, who are members of Facebook groups for parents/guardians of a child with an ASD, or whose child attends a specialized school serving adolescents with ASDs.

Potential participants were invited to complete an online survey regarding their perception of their adolescent's visual media usage, social interactions and other

variables. Thirty-two people sought to participate, but twelve of them were excluded because they answered no to the filter question, “Are you a parent/guardian of an adolescent with an ASD?”

The study was completed by 20 eligible participants, including parents/guardians of 16 male (80%) and 4 female (20%) adolescents with an ASD. The participants included parents/guardians of one 12 year old (5%), two 13 year olds (10%), five 14 year olds (25%), five 15 year olds (25%), three 16 year olds (15%), three 17 year olds (15%) and one 18 year old (5%). In the sample, nine participants (45%) identified as parents/guardians of an adolescent with an Autistic Disorder diagnosis; five participants (25%) identified as parents/guardians of an adolescent with an Asperger’s Disorder diagnosis; and six participants (30%) identified as parents/guardians of an adolescent with a PDD-NOS diagnosis.

Protection of Human Subjects

This study was reviewed by the St. Catherine University Institutional Review Board. Permission was obtained from the Autism Society of Minnesota to post the survey on their website for members to access (Appendix A). The researcher also ensured anonymity of the participants by disabling Qualtrics (the online survey tool) from collecting email addresses or other identifying information from the participants. The survey began with a letter of informed consent (Appendix B). Participants expressed their consent to participate in the study by continuing past the letter of consent on the first page of the survey, and completing the survey. There were no known risks or benefits to participating in this study. The data was stored on a password protected computer belonging to the researcher. The data was destroyed from the computer on June 1, 2014.

Data Collection Instrument and Process

The data collection instrument for this study is the Social Interactions and Visual Media Survey (SIVMS) (Appendix C). SIVMS was created and distributed via Qualtrics. The researcher developed the survey combining information from the literature reviewed, gaps in research, and prior experience working with adolescents with autism spectrum disorders. The survey included twelve questions that gathered information such as demographics, visual media interests, language skills, and social interactions with others. The survey consisted of ten closed-ended questions, five of which included space to explain answers, and two open-ended questions.

In order to increase reliability and validity, the survey was reviewed by the researcher's committee members and compared to the literature. The committee included a school social worker and a special education teacher, both of whom work with or have worked with adolescents with ASDs for a number of years.

Data Analysis

The quantitative data collected from the survey was imported into SPSS, cleaned and analyzed. In order to analyze the demographics of the research sample the author conducted several frequency analyses. Chi-square tests and T-tests were used to test the hypotheses and are described in the following paragraphs. For a complete list of the statistical tests that were used in this research project, please see Appendix E. Finally, the qualitative data, collected through two open-ended questions and five questions that included space to explain answers, were used to support and describe the quantitative data.

There were three hypotheses for this study. First, there is an association between language skills and interactions with peers. Association was tested between the level of language skills and the frequency of the child's interactions about visual media. The nominal variable in this study measured the level of language skills of the respondent's child, and the ordinal variable in this study measured how often the respondent's child interacted with peers about visual media.

The Language Skills variable was operationalized with the survey item: "Please rate your child's language skills: communicates needs, talks in sentences, and responds to questions (independently)." The response options range from 1 ("Never") to 3 ("Sometimes") to 5 ("Almost Always") along a Likert scale. A new variable was created that summed the scores for all three skills for a range of 3 to 15. This variable was then recoded into High Language Skills (HL) and Low Language Skills (LL), with a score of 3 to 8 indicating LL and a score of 9 to 15 indicating HL.

The Interactions with Peers variable was operationalized with the survey item: "How often does your child engage in interactions with peers about visual media interests?" The response options ranged from 1 ("Never") to 3 ("Sometimes") to 5 ("Almost Always") along a Likert scale. The variable was then recoded into Occasional Interactions (OI) and Frequent Interactions (FI). Occasional Interactions included scores of 1 through 3 and Frequent Interactions included scores of 4 to 5.

This study also hypothesized that there is an association between the frequency of visual media use and interactions with others, (i.e. an adolescent who engages in visual media use at least weekly will have more high-level interactions with others that are about visual media). Association was tested between frequent engagement in visual

media and level of social exchange with others. The frequency of engagement in visual media was operationally defined through a survey question that asked, “How frequently does your child engage in visual media use?” The response options were on a Likert scale ranging from 1 = Never to 5 = Many times a day. The responses were recoded to look at visual media engagement that is weekly or more.

The level of interaction with others variable was operationally defined through the survey question, “What do you observe when your child interacts with others? Check all that apply.” The response options consisted of six types of interactions, four of which were high-level (reciprocal conversation, initiates conversation, shows interest, asks questions) and two of which were low level (parallel play, listens to partners answers). These were re-coded into two categories: high-level social interaction ability and low-level social interaction ability. If at least one high-level interaction skill was present, the participant’s response was categorized into high level (HL) ability, and if no high-level interaction skills were present, the participant’s response was categorized as low level (LL) ability. It was not possible to analyze the association between the two variables, frequency of visual media use and interactions with others, due to the limited number of participants. A descriptive analysis provides quantitative indicators of what is common (Monette, Sullivan & DeJong, 2011) about the variables frequency of visual media use and interactions with others.

The final hypothesis for this study was, an adolescent who engages in visual media use at least weekly will have more interactions with others that are about visual media than adolescents who less frequently use visual media. The frequency of engagement in visual media variable was described above. The percentage of interactions

about visual media was operationally defined as “What % of your child’s interactions are about visual media?” A T-test was conducted.

Findings

Relationship between Language Skills and Interactions with Peers

The first hypothesis for this study is: There is an association between language skills and interactions with peers.

Table 1

Language Skills and Interactions with Peers Crosstab

		Peer Interactions		Total
		Recorded		
		1.00	2.00	
Language Skills Recorded	1.00 Count	3	2	5
	Expected Count	2.3	2.8	5.0
	% within Language Skills Recorded	60.0%	40.0%	100.0%
2.00	Count	6	9	15
	Expected Count	6.8	8.3	15.0
	% within Language Skills Recorded	40.0%	60.0%	100.0%
Total	Count	9	11	20
	Expected Count	9.0	11.0	20.0
	% within Language Skills Recorded	45.0%	55.0%	100.0%

Table 1 shows that, of the respondents who reported that their adolescents with ASD had low language skills, three (60%) occasionally interacted with peers about visual media interests, and two (40%) frequently interacted with peers about visual media interests. Of the respondents who reported that their adolescents with ASD had high language skills, six (40%) occasionally interacted with peers about visual media interests, and nine (60%) frequently interacted with peers about visual media interests. This crosstabulation demonstrates that in the sample, those who had high language skills were

slightly more likely than expected, and those who had low language skills were slightly less likely than expected, to frequently interact with peers about visual media interests.

Table 2

Language Skills and Interactions with Peers Chi-Square

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.606 ^a	1	.436		
Continuity Correction ^b	.067	1	.795		
Likelihood Ratio	.605	1	.437		
Fisher's Exact Test				.617	.396
Linear-by-Linear Association	.576	1	.448		
N of Valid Cases	20				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.25.

b. Computed only for a 2x2 table

Table 2 shows that the p-value for the chi-square of the variables Language Skills and Interactions with peers is .617. Since the p-value is greater than .05, we fail to reject the null hypothesis. Therefore, this data does not support the research hypothesis that there is a significant association between the level of one's language skills and the frequency of their interactions with peers about visual media interests.

Because the chi-square is not significant, we cannot conclude that more adolescents with low level language skills rarely interacted with peers about visual media interests than we would expect (actual count = 3, expected count = 2.3), or that fewer adolescents with low level language skills more frequently interact with peers about visual media interests than we would expect (actual count = 2, expected count = 2.8). Additionally, we cannot conclude that fewer adolescents with high level language skills rarely interacted with peers about visual media interests than we would expect (actual count = 6, expected count = 6.8), or that more adolescents with high language skills more

frequently interact with peers about visual media interests than we would expect (actual count = 9, expected count = 8.3).

Frequency of Engagement in Visual Media

Tables 3 and 4 show that 85% to 90% of adolescents engaged in video game use and computer use weekly, as reported by their parent or legal guardian. Of all adolescents with ASD who engage in visual media use weekly or more, 90% play video games, 85% use computers, 80% engage with Apps (via iPad/iPod/Kindle), 75% watch television, 35% use social media and 25% engage with other forms of visual media (DVDs, DS, and using iPad for Wikipedia), as reported by their parent or legal guardian.

Table 3

Frequency of Video Game Use

	Frequency	Percent
Monthly	2	10.0
Weekly	6	30.0
Daily	8	40.0
Many times a Day	4	20.0
Total	20	100.0

Table 4

Frequency of Computer Use

	Frequency	Percent
Monthly	3	15.0
Weekly	3	15.0
Daily	9	45.0
Many times a Day	5	25.0
Total	20	100.0

Skills Used in Interactions with Others

This variable measures the social interaction skills the respondents identified that their adolescent with ASD utilizes with peers, siblings, parents/guardians, other family members, and other adults (see Table 5).

Table 5
Interaction Skills with Others

	Peers		Siblings		Parents/ Guardians		Other Family Members		Other Adults	
	% Yes	% No	% Yes	% No	% Yes	% No	% Yes	% No	% Yes	% No
Reciprocal Conversation	65	35	30	70	65	35	60	40	50	50
Initiates Conversation	55	45	55	45	70	30	40	60	50	50
Shows Interest	55	45	50	50	55	45	35	65	45	55
Asks Questions	40	60	40	60	60	40	45	55	45	55
Parallel Play	40	60	15	75	10	90	20	80	15	85
Listens to Partners Answers	35	65	25	75	45	55	35	65	35	65

n = 20

Of the 20 respondents, 55% reported that their adolescent with an ASD initiated conversations with peers, 55% reported that their adolescent initiated conversations with siblings, 70% reported that their adolescent initiated conversations with parents/guardians, 40% reported that their adolescent initiated conversations with other family members, and 50% reported that their adolescent initiated conversations with other adults. For the skill of reciprocal conversation, 65% reported that their adolescent engaged in reciprocal conversations with peers, 30% with siblings, 65% with parents/guardians, 60% with other family members and 50% with other adults. For the skill shows interest, 55% reported that their adolescent shows interest in interactions with peers, 50% with siblings, 55% with parents/guardians, 35% with other family members,

and 45% with other adults. Of the respondents, for the skill of asking questions, 40% reported that their adolescent with an ASD asks questions in interactions with peers, 40% with siblings, 60% with parents/guardians, 45% with other family members, and 45% with other adults.

Table 5 also shows that 35% of the respondents reported that their adolescent with an ASD listened to their peers' answers, 25% listened to answers of siblings, 45% to the answers of parents/guardians, 35% to those of other family members, and 35% to those of other adults. Finally, for the skill of parallel play, 40% of the respondents reported that their adolescent engaged in parallel play with peers, 15% with siblings, 10% with parents/guardians, 20% with other family members and 15% with other adults.

Relationship between Visual Media and Interactions

Interactions with peers and television use. Table 6 shows that, according to their caregivers, adolescents with ASDs who occasionally watched television spent half their time (mean percentage of 50.2%) with their peers interacting about visual media, while adolescents with ASDs who had frequent engagement (FE) with television spent a mean percentage of 41.57% of time with their peers interacting about visual media. The difference between these mean scores was 8.63 percent. Therefore, adolescents with ASDs who occasionally watch television have more interactions with peers about visual media than adolescents with ASDs who frequently watch television, as reported by their parent or legal guardian.

Table 6

Peer Interactions and Television Use Group Statistics

	TV Frequency (Recoded)	N	Mean	Std. Deviation	Std. Error Mean
Interactions about	1.00	5	50.2000	33.91460	15.16707
VM-Peers	2.00	14	41.5714	23.76719	6.35205

Table 7

Peer Interactions and Television Use T-Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Interactions about visual media-Peers	.392	.540	.625	17	.540	8.62857	13.80964	-20.507	37.76437
Equal variances assumed			.525	5.474	.620	8.62857	16.44349	-32.562	49.81955
Equal variances not assumed									

Table 7 shows the Levene's Test of Equality of Variance for the independent samples T-test is .540. Since .540 is greater than .05, the Levene's Test is not significant. Therefore, the p-value for this T-test is .540. Since the p-value is greater than .05, the results of this data are not statistically significant. As a result, we fail to reject the null hypothesis that there is no difference between adolescents who occasionally and frequently engage in television use on their interactions, about visual media, with peers.

Interactions with peers and video games use. Table 8 shows that the mean percentage of interactions with peers about visual media, by adolescents with ASDs who occasionally played video games, was 20 percent as reported by their parent or legal guardian. The mean percentage of interactions with peers about visual media, by adolescents with ASDs who frequently played video games, was 46.65 percent as reported by their parent or legal guardian. The difference between the mean scores was 26.65 percent. Therefore, adolescents with ASDs who occasionally play video games have fewer interactions with peers about visual media than respondents who frequently play video games.

Table 8

Peer Interactions and Video Game Use Group Statistics

	Video Games Frequency (Recoded)	N	Mean	Std. Deviation	Std. Error Mean
Interactions about visual media-Peers	1.00	2	20.0000	28.28427	20.00000
	2.00	17	46.6471	25.18417	6.10806

Table 9
Peer Interactions and Video Game Use T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Interactions about visual media-Peers	Equal variances assumed	.010	.922	-1.41	17	.178	-26.65	18.971	-66.671	13.377
	Equal variances not assumed			-1.27	1.195	.396	-26.65	20.912	-209.052	155.76

Table 9 shows the Levene’s Test of Equality of Variance for the independent samples T-test is .922. Since .922 is greater than .05, the Levene’s Test is not significant. Therefore, the p-value for this T-test is .178. Since the p-value is greater than .05, the results of this data are not statistically significant. As a result, we fail to reject the null hypothesis that there is no difference between occasional and frequent video game play and the interactions adolescents with ASDs have with peers about visual media.

Interactions with peers and computer use. Table 10 shows that the mean percentage of interactions with peers about visual media, by adolescents with ASDs who occasionally used computers, was 34 percent as reported by their parent or legal guardian. The mean percentage of interactions with peers about visual media, by adolescents with ASDs who frequently used computers, was 45.69 percent as reported by their parent or legal guardian. The difference between the mean scores was 11.69 percent.

Therefore, adolescents with ASDs who frequently used computers have more interactions with peers about visual media than respondents who occasionally used computers.

Table 10
Peer Interactions and Computer Use Group Statistics

	Frequency Computer Recorded	N	Mean	Std. Deviation	Std. Error Mean
Interactions about	1.00	3	34.0000	29.44486	17.00000
visual media-Peers	2.00	16	45.6875	25.99928	6.49982

Table 11
Peer Interactions and Computer Use T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Interactions about visual media-Peers	Equal variances assumed	.071	.793	-.703	17	.492	-11.688	16.627	-46.768	23.393
	Equal variances not assumed			-.642	2.62	.572	-11.688	18.200	-74.664	51.289

Table 11 shows the Levene’s Test of Equality of Variance for the independent samples T-test is .793. Since .793 is greater than .05, the Levene’s Test is not significant. Therefore, the p-value for this T-test is .492. Since the p-value is greater than .05, the results of this data are not statistically significant. As a result, we fail to reject the null

hypothesis that there is no difference between adolescents with ASD who occasionally and frequently used computers on their interactions, about visual media, with peers.

Interactions with siblings and television use. Table 12 shows that caregivers reported that their adolescents with ASDs who occasionally watched television had interactions with about visual media with their siblings a mean percentage of 60.4 percent. Caregivers reported that their adolescents with ASDs who frequently watched television had interactions about visual media with their siblings a mean percentage of 40.36 percent. The difference between the mean scores was 20.04 percent. Therefore, adolescents with ASDs who occasionally watched television had more interactions with siblings about visual media than respondents who frequently watched television, as reported by their parent or legal guardian.

Table 12

Sibling Interactions and Television Use Group Statistics

	Television Frequency Recoded	N	Mean	Std. Deviation	Std. Error Mean
Interactions about visual media- Siblings	1.00	5	60.4000	36.01805	16.10776
	2.00	14	40.3571	30.59816	8.17770

Table 13
Sibling Interactions and Television Use T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Interactions about visual media-Siblings	Equal variances assumed	.011	.917	1.204	17	.245	20.043	16.649	-15.083	55.169
	Equal variances not assumed			1.110	6.201	.308	20.043	18.065	-23.815	63.901

Table 13 shows the Levene’s Test of Equality of Variance for the independent samples T-test is .917. Since .917 is greater than .05, the Levene’s Test is not significant. Therefore, the p-value for this T-test is .245. Since the p-value is greater than .05, the results of this data are not statistically significant. As a result, we fail to reject the null hypothesis that there is no difference between adolescents with ASDs who occasionally and frequently watch television and their interactions about visual media with siblings.

Interactions with siblings and video games use. Table 14 shows that caregivers reported that their adolescents with ASD who occasionally played video games had interactions about visual media with their siblings a mean percentage of 79.5 percent. Caregivers reported that their adolescents with ASDs who frequently used video games had interactions about visual media a mean percentage of 41.65 percent. The difference between the mean scores was 37.85 percent. Therefore, adolescents with ASD who

occasionally play video games have more interactions with siblings about visual media than respondents who frequently play video games.

Table 14
Sibling Interactions and Video Game Use Group Statistics

Video Games Frequency Recoded		N	Mean	Std. Deviation	Std. Error Mean
Interactions about visual media-Siblings	1.00	2	79.5000	20.50610	14.50000
	2.00	17	41.6471	31.48004	7.63503

Table 15
Sibling Interactions and Video Game Use T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Interactions about visual media-Siblings	Equal variances assumed	1.133	.302	1.636	17	.120	37.853	23.131	-10.949	86.655
	Equal variances not assumed			2.310	1.624	.176	37.853	16.387	-50.89	126.595

Table 15 shows the Levene’s Test of Equality of Variance for the independent samples T-test is .302. Since .302 is greater than .05, the Levene’s Test is not significant. Therefore, the p-value for this T-test is .120. Since the p-value is greater than .05, the results of this data are not statistically significant. As a result, we fail to reject the null hypothesis that there is no difference between adolescents with ASD who occasionally and frequently play video games and their interactions about visual media with siblings.

Interactions with siblings and computer use. Table 16 shows that caregivers reported that their adolescents with ASDs who engaged in occasionally used computers had interactions about visual media with their siblings a mean percentage of 79.33 percent. Caregivers reported that their adolescents with ASDs who frequently used computers had interactions about visual media with their siblings a mean percentage of 39.31 percent. The difference between the mean scores was 40.02 percent. Therefore, adolescents with ASD who occasionally use computers have more interactions with siblings about visual media than respondents who frequently use computers.

Table 16

Sibling Interactions and Computer Use Group Statistics

	Frequency Computer Recoded	N	Mean	Std. Deviation	Std. Error Mean
Interactions about	1.00	3	79.3333	23.69247	13.67886
visual media-Siblings	2.00	16	39.3125	30.18989	7.54747

Table 17
Sibling Interactions and Computer Use T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Interactions about visual media-Siblings	Equal variances assumed	.990	.334	2.156	17	.046	40.021	18.56	.863	79.179
	Equal variances not assumed			2.562	3.362	.074	40.021	15.623	-6.806	86.847

Table 17 shows the Levene’s Test of Equality of Variance for the independent samples T-test is .334. Since .334 is greater than .05, the Levene’s Test is not significant. Therefore, the p-value for this T-test is .046. Since the p-value is less than .05, the results of this data are significant. As a result, we reject the null hypothesis and we find support for the hypothesis that there is a difference between adolescents with ASD who occasionally and frequently use computers and their interactions about visual media with siblings.

Qualitative Themes

The respondents of the survey were given the option to provide descriptive information regarding how visual media has impacted their child’s social interactions. Of the twenty respondents, only nine took the opportunity to explain how visual media has impacted their child’s social interactions. Similarly, of the twenty respondents, only four

took the opportunity to answer the qualitative question “Is there anything else important for me to understand that has not yet been covered?”

Positive. A majority of the responses indicated that visual media has impacted their child’s social interactions in a positive way. Of the twenty respondents, the following responses came from respondents who found that visual media has positively impacted their child’s social interactions in a general sense.

“Subject matter in conversations OFTEN refers to visual media.”

“[My son] seems to relate more to people because of his interest areas.”

The following responses came from respondents who found that visual media has positively impacted their social interactions with peers. These responses describe that visual media has given their adolescents a conversation topic with their peers. Visual media provides these adolescents with a common interest among their peers.

“My son primarily interacts conversationally with peers about visual media.”

“[Visual media] has increased his social interactions. He now has something in common with a significant amount of his peers.”

“Gives [my daughter] a common interest with other kids.”

Finally, one respondent noted the comfort that individuals with ASD get from media. They wrote, *Media can provide a comfortable, safer outlet for many [individuals with ASDs]. The movies they like to watch always end the same way, the games they play are predictable.*

Negative. Respondents indicated that visual media has also had a negative impact on their child’s social interactions. A theme found was that visual media can be all-

consuming of their adolescent's interactions with others. The following describes this theme.

"[Visual media] can be all consuming when talking to her."

"We have to stay off visual media when working with his PCAs [personal care assistants] on purpose – so their activities are not about visual media, but [my son] would still prefer to talk about some type of visual media with them (favorite game or show) while doing a non-media activity."

Another negative theme found was the age appropriateness of the media. Sometimes the visual media an adolescent with an ASD is interested in might not be age appropriate, and peers may respond negatively to this (i.e. an 18 year old who enjoys Pokémon, which is typically viewed by younger children).

"One negative for [my son] is that the shows he talks about are sometimes not age appropriate (i.e. too young)."

Discussion

The purpose of this study was to examine the relationship between visual media and social interactions of adolescents with ASDs through the following research question: What effect does visual media have on the social interactions of adolescents with ASDs? This section will review how this study's findings compared to literature regarding visual media and adolescents with ASDs.

Interactions with Siblings

The data showed that adolescents who frequently use the computer have fewer interactions with their siblings about visual media. This finding was statistically significant, and these results were opposite of what was expected by the researcher. This

result might have been found because 85% of adolescents with ASDs who engaged in media use weekly or more spent time engaged with computers, as reported by their parents or legal guardians. As a result of being engaged so frequently with the computer, fewer opportunities would have been available to engage with their siblings about visual media.

The data showed that adolescents who frequently watched television had fewer interactions with siblings about visual media. This relationship was opposite of what was expected by the researcher. Similar to results between watching television and interactions with siblings, adolescents who played video games frequently had less interactions with siblings about visual media. This was opposite from what was expected by the researcher, although the results were not statistically significant.

Ties to Conceptual Framework

Looking through the lens of social learning theory, the assumption is that visual media (used as a motivating interest) has an effect on the social interactions of adolescents with ASDs. Literature shows that visual media can promote communication in individuals with ASD (Durkin et al., 2013) and one study found that children with an ASD had developed some verbal skills directly from watching videos (Nally et al., 2000). Through the findings, statistically significant and non-statistically significant, this study shows that there is a connection between media use and social interactions, however it is not in the direction that was predicted. The assumption of social learning theory was not fully supported through the findings of this study, thus begs the question of whether this theory differs for individuals with ASDs? Since individuals with ASDs experience the social world differently, social learning theory might look different when applying it to

this population. This might explain why the results differed from what was expected by the researcher.

Language Skills and Interactions with Peers

The data showed that respondents who had high language skills more frequently interacted with peers than respondents with low language skills. Though the data is not statistically significant, it is distributed in the way that was hypothesized. One participant wrote, *Echolalia is common in our home, so our child often mimics scripts from cartoons, movies, etc...Also, will often start a conversation about something [he] has seen.* This helps to support that visual media may have an impact on increasing the language skills of an adolescent with an ASD and help turn scripting into initiating conversations about visual media. With further research and more participants, it would be interesting to see whether a significant relationship is uncovered.

Frequency of Visual Media Use

Ninety percent of participants who engaged in visual media use weekly or more played video games, while 70% watched television. This contrasts with another study which showed that 60.3% of youth with ASD spent most of their free time watching television and 41.4% played video games (Mazurek et al., 2011). This study showed that adolescents with ASDs play video games more than twice as often as the other study.

Social Interaction Skills

Reciprocal conversation, showing interest, asking questions, and initiating conversation are considered to be high-level social interaction skills. When interacting with others, more participants showed high-level interaction skills with other adults, family members other than siblings and parents/guardians than they did with peers and

siblings. This finding was interesting and could be a result of many factors. One important note is that parents/guardians were the ones providing responses based on their observations of their adolescents with ASDs, and this may have skewed their responses. Similarly, they might not get a chance to see their child in a variety of settings, so they may have made educated guesses on the interaction skills their child utilized with others. Literature shows that visual media can promote communication in individuals with ASD (Durkin et al., 2013) and one study found that children with an ASD had developed some verbal skills directly from watching videos (Nally et al., 2000).

Implications

This section will discuss implications for social work practice, policy and future research.

Implications for Practice

Clinical social workers, as well as other mental health workers and helping professionals, can use the information from this study to better understand how to work with adolescents with autism spectrum disorders. Social workers can also use the information from this study to expand their understanding of how prominent visual media use is with adolescents with ASD and use this to create and promote programming and interventions using this visual media modalities. One participant mentioned, *“There are very few ways of actually helping a person [with ASD] improve their social ability and comfort levels with others and few people know about them and fewer people use them.”*

Interventions social workers can use with adolescents with ASDs might include video modeling. Through video modeling, these adolescents could work on social skills in a therapeutic setting while utilizing a motivating medium. Social workers and other

mental health professionals could also use an iPad to play games with peers in a therapeutic setting, to work on social skills and functional language use with peers. As use of visual media tools grows, the use of these tools can be more normalized in a variety of settings (for example, using an iPad to assist with social skills and social situations for individuals with ASDs versus a Dynavox).

There are also implications for other visual learners, such as individuals with ADD/ADHD. As a research base and understanding of visual media grows, the opportunities to use visual media as a teaching or therapeutic modality for other visual learners broadens as well. Visual media can be implemented in practice to work on social skills for other adolescents as well. It can also be utilized by social workers and mental health professionals to relate to adolescents and engage with them in a different way (i.e. teach skills by referencing and connecting to visual media used by individuals).

Implications for Policy

Social work programs and programs for other mental health professionals minimally address the ASD population and effective interventions to use with these individuals. The CDC identifies 1 in 68 children as on the autism spectrum, and these numbers continue to rise (CDC, 2014). As a result, the potential number of families this disorder impacts is rising as well. It is important for the social work profession and social work professionals to be provided with sufficient practice information to help serve these individuals. In order to provide these individuals with appropriate evidence based interventions, it is imperative that schools of social work implement a curriculum specifically about this population and provide professionals with a base knowledge of appropriate interventions, strategies and techniques to work with individuals with ASD.

As the prevalence of ASDs continues to rise, as well as the use of visual media, it will be important for social workers and other mental health professionals to advocate for funding and/or for an insurance mandate to cover communication devices, such as iPads, for kids and adolescents with ASDs. As technology changes, it is important to encourage legislation and insurance companies to follow the trend. It is also important to advocate for funding in school to have these resources available. Visual media and communication devices (such as iPads) should be available for social workers in the school setting to help individuals with ASDs work on these pertinent social skills while using a “socially acceptable” device. Providing these individuals with a medium that helps to normalize them, rather than make them stand out, is a substantial step in the right direction.

Implications for Future Research

It’s important to note that more research is needed in this area in order to find any significant relationships between social interactions and visual media use in adolescents with ASDs. Future research that explores the relationship between visual media and social interactions would be beneficial. Similarly, future research should also explore the role autism plays in how social learning theory works (or doesn’t) with adolescents with an ASD. Social workers can advocate for this necessary research on their clients behalf and provide them with interventions that would help promote their social interactions while incorporating their visual media interests. Research that explores the benefits and constraints associated with implementing visual media interventions to improve the social interactions of individuals with ASD would be valuable to social work and other mental health professions.

Strengths and Limitations

A strength of this study is that it may be the first study to examine the relationship between visual media and social interactions of adolescents with ASDs. Also, the survey included open ended questions, which allowed participants to explain their answers instead of limiting their responses to a predetermined set of answers. This contributed to a deeper understanding of the perceptions and experiences parents have of their children and their interpretation of the questions asked in the survey.

There were some limitations to this study. One limitation was that the study collected information from the parents rather than from the adolescents or through an observation or other monitoring. Parents don't see their children in all settings, such as school, and they might not be aware of interactions that take place in those settings. Another limitation was that each parent may have a different account of their child, and depending on which parent completed the survey, they might have interpreted their child's abilities and function of their behavior differently than the survey had implied. Finally, an important limitation was the means of recruitment. An organization that had given consent to participate early on was unable to meet the requirements and therefore was unable to recruit participants. As a result, the survey was not distributed as widely as anticipated and the researcher had to resort to other methods of recruitment which resulted in fewer respondents.

Conclusion

In March 2014, the CDC published new findings showing the prevalence of autism is estimated at 1 in 68, which is up from the previous 1 in 88 findings. As the population skyrockets, evidence-based interventions and supports remain the same. Out

of frustration, one caregiver wrote, “*There are very few ways of actually helping a person [with an ASD] improve their social ability and comfort levels with others and few people know about them and fewer people use them.*” This research is a starting point to find new, appropriate, effective ways to help these adolescents. “*It’s not a one-size fits all*” as pointed out by a participant, but with more understanding and research around the impacts visual media has on the interactions of adolescents with ASD, we may develop an effective intervention tool to work with these adolescents.

References

- American Psychiatric Association (2012). *Autism Spectrum Disorders*. Retrieved from <http://www.psychiatry.org/autism>
- Autism Society. (2013) *About Autism*. Retrieved from <http://www.autism-society.org/about-autism/>
- Autism Speaks. (2013). *What is Autism: Symptoms*. Retrieved from <http://www.autismspeaks.org/what-autism/symptoms>
- Baker, M.J., Koegel, R.L., & Koegel, L.K. (1998). Increasing the social behavior of young children with autism using their obsessive behaviors. *Research and Practice for Persons with Severe Disabilities*, 23(4), 300-308.
- Bandura, A. (1978). The self system in reciprocal determinism. *American Psychologist*, 33(4), 344-358.
- Centers for Disease Control and Prevention (2014). *Autism Spectrum Disorder (ASD) Data & Statistics*. Retrieved from <http://www.cdc.gov/ncbddd/autism/data.html>
- Centers for Disease Control and Prevention. (2012). *Prevalence of Autism Spectrum Disorders – Autism and Developmental Disabilities Monitoring Network, 14 Sites, United States, 2008*. Retrieved from <http://www.cdc.gov/mmwr/pdf/ss/ss6103.pdf>
- Durkin, K., Boyle, J., Hunter, S., & Conti-Ramsden, G. (2013). Video games for children and adolescents with special educational needs. *Zeitschrift fur Psychologie*, 211(2), 79-89. doi: 10.1027/2151-2604/a000138

Greitemeyer, T., & Osswald, S. (2010). Effects of prosocial video games on prosocial behavior. *Journal of Personality and Social Psychology, 98*(2), 211-221. doi: 10.1037/a0016997

Hastings, E.C., Karas, T.L., Winsler, A., Madigan, A., & Tyler, S. (2009). Young children's video/computer game use: Relations with school performance and behavior. *Issues in Mental Health Nursing, 30*(10), 638-649. doi: 10.1080/016112840903050414

Hopkins, I.M., Gower, M., Perez, T., Smith, D., Amthor, F., Wimsatt, F.C., & Biasini, F. (2011). Avatar assistant: Improving social skills in students with an ASD through a computer-based intervention. *Journal of Autism and Developmental Disorders, 41*, 1543-1555. doi: 10.1007/s10803-011-1179-z

Kidron, Y., & Fleischman, S. (April 2006). Research matters / Promoting adolescents' prosocial behavior. *Educational Leadership: Teaching the Tweens, 63*(7), 90-91. Retrieved from <http://www.ascd.org/publications/educationalleadership/apr06/vol63/num07/Promoting-Adolescents'-Prosocial-Behavior.aspx>

Koegel, R., Fredeen, R., Kim, S., Danial, J., Rubinstein, D., & Koegel, L. (2012). Using perseverative interests to improve interactions between adolescents with autism and their typical peers in social settings. *Journal of Positive Behavior Interventions, 14*(3), 133-141. doi: 10.1177/1098300712437043

Mares, M. L., & Woodard, E. (2005). Positive effects of television on children's social interactions: A meta-analysis. *Media Psychology, 7*, 301-322.

- Marshall, S. J., Gorely, T., & Biddle, S. J. H. (2006). A descriptive epidemiology of screen-based media use in youth: A review and critique. *Journal of Adolescence*, 29(3), 333-349. doi: 10.1016/j.adolescence.2005.08.016
- Mazurek, M., & Engelhardt, C. (2013). Video game use and problem behaviors in boys with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 316-324. doi: 10.1016/j.rasd.2012.09.008
- Mazurek, M., Shattuck, P., Wagner, M., & Cooper, B. (2011). Prevalence and correlates of screen-based media use among youths with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 42, 1757-1767. doi: 10.1007/s10803-011-1413-8
- Mazurek, M., & Wenstrup, C. (2012). Television, video game and social media use among children with ASD and typically developing siblings. *Journal of Autism and Developmental Disorders*, 43, 1258-1271. doi: 10.1007/s10830-012-1659-9
- Mechling, L., Gast, D., & Cronin, B. (2006). The effects of presenting high-preference items, paired with choice, via computer-based video programming on task completion of students with Autism. *Focus on Autism and Other Developmental Disabilities*, 21(1), 7-13. doi: 10.1177/10883576060210010201
- Miller, P. (1993). Social Learning Theory. *Theories of Developmental Psychology* (3rd ed.) (pp. 177-232). New York, NY: W. H. Freeman and Company.
- Monette, D.R., Sullivan, T.J., & DeJong, C.R. (2011). *Applied Social Research: A Tool for the Human Services* (8th ed.). Belmont, CA: Brooks/Cole Cengage Learning.

- Nally, B., Houlton, B., & Ralph, S. (2000). Researches in Brief: The management of television and video by parents of children with Autism. *Autism*, 4(3), 331-338. doi: 10.1177/1362361300004003008
- Orsmond, G. I., Krauss, M. W., & Seltzer, M. M. (2004). Peer relationships and social and recreational activities among adolescents and adults with autism. *Journal of Autism and Developmental Disorders*, 34(3), 245-256.
- Padgett, D. K. (2008). *Qualitative methods in social work research* (2nd ed.). Thousand Oaks, California: Sage Publications, Inc.
- Rayner, C., Denholm, C., & Sigafos, J. (2009). Video-based intervention for individuals with autism: Key questions that remain unanswered. *Research in Autism Spectrum Disorders*, 3(2), 291-303. doi: 10.1016/j.rasd.2008.09.001
- Shane, H., & Albert, P. (2008). Electronic screen media for persons with autism spectrum disorders: Results of a survey. *Journal of Autism and Developmental Disorders*, 38, 1499-1508. doi: 10.1007/s10803-007-0527-5
- Shattuck, P. T., Orsmond, G. I., Wagner, M., & Cooper, B. P. (2011). Participation in social activities among adolescents with an autism spectrum disorder. *PLoS ONE*, 6(11), 1-9. doi: 10.1371/journal.pone.0027176
- Wainer, A. L., & Ingersoll, B. R. (2011). The use of innovative computer technology for teaching social communication to individuals with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5(1), 96-107. doi: 10.1016/j.rasd.2010.08.002

Appendix A

Permission from Autism Society of Minnesota

Hello, Audra. I apologize for taking a couple of days to respond to you. We are in a very busy cycle at AuSM, and I'm not getting to my e-mail as quickly as I'd like to!

On the AuSM website, we have a page reserved for research studies. I would be glad to post your information and a link to your survey when it is available. I also can post a short paragraph about your research in our member newsletter and on AuSM's Facebook page.

Please keep me posted on the status of your research proposal. Once it is accepted and you're ready to start promoting your study, send me the info you'd like posted. If you have questions between now and then, don't hesitate to send me an e-mail or give me a call.

Thank you and good luck with your research preparations.

Sincerely,
Kelly Thomalla

Kelly Thomalla
Director of Communications
Autism
Society of Minnesota (AuSM)
651.647.1083 ext. 25
Cell: 651.485.4652
kthomalla@ausm.org
www.ausm.org

Appendix B**Form of Consent****CONSENT FORM****ST. CATHERINE UNIVERSITY / UNIVERSITY OF ST. THOMAS
GRSW682 RESEARCH PROJECT****Visual Media and ASD: Effects on Social Interactions**

I am conducting a study about adolescents with Autism Spectrum Disorders (ASD) and the effects visual media has on the social interactions of these individuals. I invite you to participate in this research. You were selected as a possible participant because you are a parent of an adolescent with ASD and/or a member of the Autism Society of Minnesota. Please read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Audra Hanly a graduate student at the School of Social Work, St. Catherine University/University of St. Thomas and supervised by Abel Knochel, Ph.D., MSW, LGSW.

Background Information:

The purpose of this study is to examine visual media and social interactions of adolescents with Autism Spectrum Disorders (ASD) through the following research question: What effect does visual media have on the social interactions of adolescents with autism spectrum disorders?

Procedures:

If you agree to be in this study, I will ask you to complete the survey that will begin following your consent to this agreement. You will be asked to complete the survey to the best of your ability. The survey will take approximately 15-25 minutes. The survey will anonymously record your answers and the results will be compiled with other completed surveys and imported into a data analysis program. The information will be stored on a password protected computer belonging to the researcher. A research committee will view and examine the data as presented by the researcher, but your identity will remain anonymous, as no identifying information will be obtained from you. The findings of the survey will be presented in a written report and orally to the social workers and St. Thomas social work students, faculty and staff. The data will be destroyed from the computer on or before June 1st, 2014.

Risks and Benefits of Being in the Study:

The study has no risks. The study has no direct benefits.

Confidentiality:

The records of this study will be kept confidential. Research records will be stored on a password protected survey tool, Qualtrics, and on a password protected computer belonging to the researcher, Audra Hanly. A research committee will view and examine the data as presented by the researcher. No identifying information will be obtained by the Qualtrics survey tool, and the identity of all participants will remain anonymous. The findings of the survey will be presented in a written report and orally to interested social workers and St. Thomas social work student, faculty and staff. The data will be destroyed from the computer on or before June 1st, 2014.

Voluntary Nature of the Study:

Your participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with St. Catherine University (SCU), the University of St. Thomas (UST), the SCU-UST School of Social Work, or the Autism Society of Minnesota. If you decide to participate, you may skip any questions you do not wish to answer and you may stop the survey at any time. You will not be able to withdraw once you submit a completed survey because your information will be anonymous and the researcher will not have a way to identify and omit your responses.

Contacts and Questions

My name is Audra Hanly. You may ask any questions you have before completing the survey by contacting me via email at hanl5351@stthomas.edu. You may also contact the Research Professor, Abel Knochel, Ph.D., MSW, LGSW via email at knoc2442@stthomas.edu, or the St. Catherine University Institutional Review Board at 651-690-6204 or via email at irb@stkate.edu with any questions or concerns.

Statement of Consent:

I have read the above information. I understand that my participation in this study is entirely voluntary and I am free to withdraw at any time without penalty. I also understand that I will not be able to withdraw my information once the survey is submitted since my responses are anonymous. By continuing to the survey I am acknowledging my consent.

Appendix C

Social Interactions and Visual Media Survey (SIVMS)

I acknowledge and consent to participate in this survey I do NOT consent to participate in this survey



Directions:

Please answer the questions in the survey to the best of your ability. You may skip any questions you do not wish to answer and may stop the survey at any time. There may be some questions you are required to answer to obtain accurate demographic information for research purposes. If you are uncomfortable with answering any of these, you are free to withdraw without penalty.

Your participation is greatly appreciated. Thank you for your time.

Audra Hanly, LSW
School of Social Work Graduate Student
St. Catherine University / St. Thomas University



Click to continue to survey

Q1: Are you a Parent or Guardian of an adolescent with an autism spectrum disorder (ASD)?

- Yes
- No

Q2: How old is your adolescent? Slide the bar to the age of the adolescent
Age: 12 – 13 – 14 – 15 – 16 – 17 – 18

Q3: What is the sex of your adolescent?

Choose one.

- Male
- Female

Q4: Where on the Autism Spectrum is your child?

- Autistic Disorder
- Asperger's Disorder
- Rhett's Disorder
- Childhood Disintegrative Disorder
- PDD-NOS
- Rather not say

Q5: Please rate your child's language skills

	Never	Rarely	Sometimes	Often	Almost All of the time
Communicates needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talks in sentences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responds to questions (independently)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6: How frequently does your child engage in visual media use?

Select all that apply.

	Never	Monthly	Weekly	Daily	Many times a Day
Television	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Games	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social Media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apps on iPad / iPod Touch / Kindle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7: How often does your child engage in interactions with the following people about visual media interests?

(For example: every conversation with a sibling is about Pokémon, so for sibling check almost all of the time)

Select all that apply.

	Never	Rarely	Sometimes	Often	Almost All of the Time
Peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Siblings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parents / Guardians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Family Members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Adults	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nobody	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8: How much does your child socialize per week outside of school?

*Socialize is defined as having a conversation, playing a game, or participating in activities with another person.

	Never	Once a Week	2-3 Times a Week	Every Other Day	Daily
Peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Siblings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parents / Guardians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Family Members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Adults	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9: What do you observe when your child interacts with others?

Check all that apply.

*Reciprocal conversation – back and forth conversation

*Parallel ‘play’ – playing next to friends but not with them (For example: sitting next to a friend playing video games, or watching a movie)

	Initiates conversation	Reciprocal conversation	Shows interest	Asks questions	Listens to partners answer	Parallel play
Peers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Siblings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parents / Guardians	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Family Members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q10: What % of your child's interactions are about visual media?

(For example: When he interacts with his siblings, 75% of the time it is about YouTube)

- _____ Peers
- _____ Siblings
- _____ Family Members
- _____ Parents / Guardians
- _____ Other Adults
- _____ Other (please describe): _____

Q11: How has visual media impacted your child's social interactions?

Please describe.

Q12: Is there anything else important for me to understand that has not yet been covered?

If so, please describe.

Appendix D

Recruitment Protocol

To Whom It May Concern:

My name is Audra Hanly and I am a graduate student at the University of St. Thomas, School of Social Work. I am currently conducting research for my Master's degree regarding the effects of visual media on the social interactions of adolescents with autism spectrum disorders (ASDs).

I am asking that you take part in a short 10 minute online survey that explores visual media use in adolescents with ASD. The survey is confidential and your responses will be recorded anonymously. A note of consent is at the beginning of the survey which details important information. Below is the link to the online survey.

http://stthomassocialwork.qualtrics.com/SE/?SID=SV_9N3uZ946JLkK6Zn

This link will be active until 2/14/14 at 11:59 pm.

Your help in this research is greatly appreciated.

Sincerely,

Audra Hanly, LSW

Han15351@stthomas.edu

Appendix E

Data Analysis Plan: List of Statistical Tests

Descriptive Statistics

Frequency Distributions

1. Age of participants' adolescent with ASD (nominal; distribution table)
2. Gender of participants' adolescent with ASD (nominal; distribution table)
3. Diagnosis of participants' adolescent with ASD (nominal; distribution table)
4. Social Interaction Skills – Peers (nominal; distribution table)
5. Social Interaction Skills – Siblings (nominal; distribution table)
6. Social Interaction Skills – Parents/guardians (nominal; distribution table)
7. Social Interaction Skills – Other family members (nominal; distribution table)
8. Social Interaction Skills – Other adults (nominal; distribution table)
9. Engagement with Television (nominal; distribution table)
10. Engagement with Video Games (nominal; distribution table)
11. Engagement with Computer (nominal; distribution table)
12. Engagement with Social Media (nominal; distribution table)
13. Engagement with Apps on iPad etc. (nominal; distribution table)
14. Engagement with Other (nominal; distribution table)

Inferential Statistics

Chi-square

1. Language Skills & Interactions with Peers

T-test

1. Interactions about VM w/Peers & Engagement with TV

2. Interactions about VM w/Peers & Engagement with Video Games
3. Interactions about VM w/Peers & Engagement with Computer
4. Interactions about VM w/Siblings & Engagement with TV
5. Interactions about VM w/Siblings & Engagement with Video Games
6. Interactions about VM w/Siblings & Engagement with Computer