The Preferred Social Strategies, Interventions, and Technology used by Instructors of Individuals with Autism Spectrum Disorders

A Master’s Research Project Presented to
The Faculty of the Patton College of Education
Ohio University

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
Chelsea Lee, M.Ed.

August, 2013
This Master's Research Project has been approved
for the Department of Teacher Education

Dianne M. Gut, Ph.D., Associate Professor, Special Education

Frans H. Doppen, Ph.D., Associate Professor and Interim Chair of the Department of Teacher Education

Advisor's initials here indicate this document has been submitted and successfully cleared a plagiarism check and that supporting documentation has been provided to the Department Chair.

Department Chair's initials here indicate supporting documentation of plagiarism check has been provided.
Abstract

The purpose of this study was to determine the preferred social strategies, interventions and technology used by instructors and/or guardians of individuals with Autism Spectrum Disorders (ASD). Particularly, this study focuses on what strategies and devices are perceived to be effective in increasing appropriate interactions among children with autism and their typically developing peers. Data was collected via an electronic survey created using Qualtrics, an online survey tool, from educators who are instructors of individuals with Autism Spectrum Disorders. Results indicate that most instructors of individuals with autism use intervention strategies for behavior and social issues. Social stories, performance feedback, and reinforcement were at the top of the list for chosen intervention strategies to use with students for behavioral and social intervention strategies. Additionally, the iPad was at the top of the list for the use of an assistive technology programs and tools used for communication with individuals with Autism Spectrum Disorders. Findings from this research support findings from the literature.
## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Review of Literature</td>
<td>5</td>
</tr>
<tr>
<td>History of Autism</td>
<td>5</td>
</tr>
<tr>
<td>Defining Autism</td>
<td>6</td>
</tr>
<tr>
<td>Research on Autism</td>
<td>7</td>
</tr>
<tr>
<td>Strategies</td>
<td>7</td>
</tr>
<tr>
<td>Technologies</td>
<td>12</td>
</tr>
<tr>
<td>Conclusion</td>
<td>14</td>
</tr>
<tr>
<td>Method</td>
<td>15</td>
</tr>
<tr>
<td>Demographics/Location</td>
<td></td>
</tr>
<tr>
<td>Participants</td>
<td></td>
</tr>
<tr>
<td>Instrumentation</td>
<td></td>
</tr>
<tr>
<td>Procedures</td>
<td></td>
</tr>
<tr>
<td>Results</td>
<td>16</td>
</tr>
<tr>
<td>Discussion</td>
<td>22</td>
</tr>
<tr>
<td>Implications for Practice</td>
<td>23</td>
</tr>
<tr>
<td>Implications for Research</td>
<td>23</td>
</tr>
<tr>
<td>Conclusion</td>
<td>24</td>
</tr>
<tr>
<td>References</td>
<td>25</td>
</tr>
<tr>
<td>Appendix</td>
<td>28</td>
</tr>
</tbody>
</table>
The purpose of this research is to determine the preferred social strategies, interventions and technology used by instructors of individuals with Autism Spectrum Disorders (ASD). Particularly, this study focuses on what strategies and devices are perceived to be effective in increasing appropriate interactions among children with autism and their typically developing peers. Therefore, results may be beneficial to future instructors and/or guardians of individuals with Autism Spectrum Disorders. These results may also lead to strategy recommendations that are used with individuals with Autism Spectrum Disorders in specific situations.

**Review of the Literature**

This review of the literature includes information about Autism Spectrum Disorders, what it is, and identifies some effective intervention strategies that has been shown to increase appropriate interactions among children with autism and their typically developing peers.

**History of Autism**

The word autism was coined in 1908 by Eugen Bleuler, an influential Swiss psychiatrist who conducted research on schizophrenics. Patients who displayed schizophrenia were self-absorbed and screened themselves off from others. In 1943, a psychiatrist at Johns Hopkins University, Leo Kanner, applied the term “autism” to a group of 11 children. These children displayed self-absorption, had severe social communication and behavioral problems. Some of the common traits between the two groups were impairments in social interaction, anguish for changes, good memory, belated echolalia (repetition of words), sensitivity to certain stimuli (especially sound), food problems, limitations in spontaneous activity, and good intellectual potential (U.S. National Library, 2009).
Defining Autism

The Autism Speaks Society (2005) defines autism and autism spectrum disorder (ASD) as a complex disorder of brain development that affects one in 110 children. Boys are more commonly affected with the statistic being one in 70 boys diagnosed with autism. Autism and ASD are characterized by varying degrees of impairment that include experiencing difficulties with social interaction, communication, and displaying repetitive behaviors, such as, arm or hand flapping, finger flicking and rocking. The Autism Speaks Society (2005), states that individuals with ASD can often have intellectual disabilities, difficulties with motor coordination, and issues with attention span. Children with autism might have difficulties with their physical health which can include struggling with sleep patterns and gastrointestinal disturbances. Autism Speaks Society (2005) reports that autism appears to develop very early on in an individual’s brain development. Although the signs and symptoms of autism do not always start to appear until the child is between two and three years old, and as more diagnostic tools have improved, it has been determined that certain signs might be noticeable before the child reaches the age of two.

Autism is seen as a continuous disorder, with many differences across individuals. However, some individuals with autism excel in certain areas such as, music, math and art. Volkmar (2003) indicated that impairments in social skills vary from person to person, and may include lack of eye contact, limited affect, or nonexistent verbal communication (Tidmarsh & Volkmar, 2003). There is a very broad spectrum of severity in individuals with autism. As noted by David Feinberg “some are severely afflicted and need institutional care, while others are only “brushed” with the disorder and grow up, work, marry, and have children of their own (as cited in McCarthy, 2007, p. ix). Individuals with autism tend to have higher rates of epilepsy and
increased rates of developmental disabilities. Autism is an increasingly diagnosed disorder with many differing opinions as to the exact definition, since cases can vary differently between each individual person. Watson (2011) advises that a priority in research is understanding the heterogeneity in children with autism. The severity of social-communicative symptoms varies widely, and the course of language development also is heterogeneous, with some individuals remaining nonverbal into adulthood and others developing exceptionally advanced language skills even though pragmatic skills remain impaired (Watson, 2011, p. 1562).

Feinberg suggests that genetics play a role in the development of autism along with the environment but researchers are still unclear of that connection and how it can be affecting so many individuals at an early age (McCarthy, 2007, p. xii). There are many more years of research needed to figure out the unanswered questions.

**Social/Behavioral Strategies for Students with Autism**

Many professionals have researched interventions, strategies, and technology that can be implemented into routines for individuals who are diagnosed with autism to improve their social skills. Scattone (2007) indicates the majority of autism research has been conducted and observed on school-age adolescents, particularly in younger children and suggests that teaching new skills to improve behavior in children with autism is as important as teaching pre-academic skills and should begin in the preschool age and continue through middle and high school. Scattone (2007) advises, “Researchers have also suggested that social skills are a learned behavior and increased interactions may occur with specific training and opportunities to practice these skills over time” (p. 717). It has been observed by many professionals and researchers that social impairments are one of the most critical elements displayed in defining autism within
It can be argued that treatments specific to social skills play a central role of intervention for children with ASD. And, given the recent trend toward inclusion in general education, the need for effective intervention techniques to improve social skills of children with ASD has become even more apparent. (p. 25)

With this in mind, much research has been devoted to analyzing strategies that could teach social skills. Caballero (2010) suggests that an increasingly popular technique used to improve the social skills for children with ASD is the use of social stories. Just as important as matching materials and strategies for students with ASD, Liber (2008) states that, “children with autism spectrum disorders (ASD) display delays or difficulties in many aspects of communication…They often struggle with the language needed for social interactions as well as demonstrate difficulty participating both in appropriate social behaviors and in social competence” (p. 312).

**Social stories.** Social stories, developed by Gray in 1993 are “short, individualized stories intended for children with ASD to provide support in new and sometimes confusing social experiences” (Caballero, 2010, p. 25). Scattone (2007) informs readers that social stories are usually written in first person to make situations described in the story easier for the child to understand and use in appropriate contexts. Additionally, a “social story provides information about what is happening and why, who will participate, when an event or activity will take place, and the appropriate response expected from the child during a given social situation” (p. 721).

Social stories can be developed by students with the help of parents and/ or teachers. When writing a social story, it is important to consider the child’s interests, learning styles, and
abilities and plan accordingly. According to Ashcroft (2010) “descriptive sentences tell where situations occur, who is involved, what they are doing, and why (e.g., “In our classroom, children sit at their desks and follow directions from the teacher.”) while perspective sentences, “describe the reactions and feelings of the child and of other people (e.g., “When I ask silly questions, it makes the other children laugh, but it makes the teacher mad.”)” (p. 197). Finally, a directive sentence should be added to tell the children what they should do (Ashcroft, 2010). Whenever appropriate, illustrations should be included to help children visualize and understand the social story, while also gaining their interest. To reinforce something that the child does well, Gray (1993) suggests that social stories should not be used to change a child’s behavior, but aim to increase their understandings of the events and expectations so that the child can cope more effectively in certain social situations that they are faced with. Therefore, social stories aim to help children learn the appropriate behaviors that are expected in different situations they may be faced with in the classroom or other situations. Social stories are there to help them ease into a given situation.

Kohler (2007), found out that a “widely accepted tenet among early childhood researchers and practitioners is that positive inclusion outcomes require that children with disabilities can interact with and learn from their typically developing peers” (p. 155). Through peer interaction, along with the use of intervention strategies such as social stories, and when practice sessions are implemented regularly, the child learns to interact more appropriately (Ashcroft 2010, p. 200).

Crozier (2005) suggests that to encourage positive behavior and increase learning among students, social stories can also be helpful in inclusive classrooms. Social stories can appeal to students in a variety of ways that include graphic display and the use of story elements. Crozier
states, “teachers can design stories that encourage students to behave positively in social situations, such as eating lunch, playing in the playground, using the library, and working with other students in groups” (p. 26).

Learning to use social stories in the classroom does not take extensive training, so it can be implemented and modified easily to meet the particular needs of the students. To ensure students are getting the greatest amount of benefit in writing and using social stories, teachers should use a systematic checklist (Crozier, 2005, p. 26). Based on O’Neill’s steps for conducting a functional assessment, Crozier (2005), identified six steps to include for the effective use of social stories, which include: “identify the need for behavior intervention, conduct a functional assessment, include social stories as part of a comprehensive behavior support plan, write the social story, implement and monitor students’ progress, and evaluate using data” (p. 27).

Caballero (2010) concludes that “social stories are written and implemented to enhance the child’s understanding of the social situation and teach appropriate behavioral responses that can be practiced by the child” (p. 25).

Social stories can be implemented to address a wide array of purposes and can be a helpful tool in the inclusion of students with autism in inclusive classrooms. Xin (2011) states, “children with ASD often adhere to routines; thus, a social story may draw on the abilities of these children to establish a routine or rule to follow in a particular social situation” (p. 19).

Having a routine during class that benefits all students, will hopefully trigger reminders as to how an individual is supposed to socially behave in that particular setting. However, there are many different strategies and techniques used to improve social skills which include peer mentors, using smart boards, ipads, video modeling, along with many others in combination with applied behavior analysis (ABA) techniques.
In a study based on social skills interventions for children with autism, 147 participants were divided into five categories, using thirty eight different intervention strategies, which 36 were single subject research studies and 2 were group experimental studies. Groups included social stories (n = 6), peer mediated (n = 9), video modeling (n = 11), cognitive behavior training (n = 3), and other (n = 9) (Wang & Spillane, 2009). Of the 147 participants with ASD, based on studies that reported gender, 73 were boys and 6 were girls. Furthermore, seven studies included 68 participants that were typically developing peers. Participants’ with ASD ages ranged from 2 to 17 (with the majority between 6 - 12) years old (Wang & Spillane, p. 321). Most of the studies took place in integrated public school settings. The majority of the studies (n = 31) were collected by using a multiple baseline design, a process of collecting measurements of multiple people, traits or settings before and after treatment (Wang & Spillane, p. 337).

Based on the outcomes of participants in the social story groups (6) used to teach social skills, “the PND (percentage of non-overlapping data presented in graphic displays as individual data points) scores ranged from 46.7% to 100% with a mean of 67.21%” (Wang & Spillane, p. 337). According to Scruggs and Mastropieri (1998), PND scores that range from 50 to 69 are considered questionable and scores from 70 to 89 are considered effective, therefore, a mean of 67.21% represents questionable effectiveness as an intervention due to the lower PND score. The video modeling study conducted eleven studies that used video modeling to teach social skills. The results of the PND scores ranged from 50% to 100% with a mean of 84.25% (Wang, P., & Spillane, A. 2009). Based on the PND score of 84.25%, this is an effective intervention for teaching social skills to children with autism. Therefore, educators should monitor these strategies closely when implementing them because they may have limited effectiveness.
**Visual strategies.** Just as the characteristics of autism vary greatly in individuals, the ways that each individual with ASD learns and comprehends material are just as great. Some individuals with autism tend to be very visual learners and the use of visual systems can strengthen understanding of their environment (Tissot, 2003). Tissot (2003) defines the use of visual strategies as “two-dimensional or three-dimensional representations of a particular concept used to communicate and teach that idea or concept. These can take the form of pictures, icons, photographs or gestures to enhance the understanding of spoken words communicating an idea” (p. 426). Boser states, “multiple inputs-sound, pictures- help students with autism learn. Interactive whiteboards and iPads let teachers try different ways to get the information out” (as cited in Windman, V., 2012, p. 28). Boser is clear that “the iPad’s sensory component is crucial. It’s the direct touch of finger to device-rather than using a mouse or stylus-that children with autism appreciate” (as cited in Windman, V., 2012, p. 28). Many of the applications for the iPad can be beneficial for individuals with autism in helping them learn about feelings and emotions of their own and others when combined with ABA (Windman, V., 2012, p. 28).

New visual devices designed to aid individuals with autism communicate include the use of applications for the Apple iPad. Shah (2011) shares that a student using the iPad as a communication tool with peers, has boosted her self-confidence in social skills and is also a “fresh” tool for new learning. The author also describes how the iPad can be beneficial, “using an application on the iPad called Proloquo2Go, Sloan [student] can scroll through pictures or choose from phrases and sentences she uses often, and the computer speaks for her” (p. 16). Students are able to easily communicate with peers by using the touch-screen application to speak for them. There are many other applications that can be used for the students in the
classroom, such as a math application that can be used by students who are intimidated by math and math worksheets. Shah (2011), shares an example of a student using the iPad for math:

He’s [student] very intimidated by math, she said. But an iPad application called Math Ninja-as the app puts it, “you aren’t just a normal kid. You are a math ninja”-starts off with a brief game, then presents one problem at a time. (p. 16)

Shah (2011), states that “anything that will reach a kid and make them excited about learning, let’s try it” (p.16).

Price (2011) reported from teachers that used the iPad and interactive e-book over text books with their students found:

Students found the iPads motivating and that use of the iPad reduced off-task behavior.

Some students would even chose the iPad as a reward for appropriate behavior, and there were no reports of students refusing to use the iPad or needing to have their iPad privileges revoked. (p. 32)

Results show that the iPad is something that should be considered for schools, libraries, and professionals serving individuals with autism. However, Tissot (2003) advises it is important to keep in mind:

The goal of visual strategies is to enhance the meaning of communication for the child.

No one particular approach is right for every child in this subgroup and alternative types of visual strategies may need to be tried before a “best” approach is discovered for any one individual child. (p. 426)

Other visual aids that assist in social skill instruction with students with autism include, video modeling, PECS (picture exchange communication system), and visual schedules. Video modeling involves demonstrating desired behaviors and role-playing through images (Ogilvie,
The child first watches the video of the desired behavior and then is asked to repeat the behavior in order to practice the desired social behaviors. Research shows this method of teaching desirable social behaviors tends to be effective. Findings from a study using video modeling with children with autism to teach social, communication, and behavioral skills were seen as being effective (Acar & Diken, 2012). Video modeling can be used to teach a variety of behaviors and skills to individuals with autism spectrum disorders. There is of course, a need for more studies in this area concerning the effectiveness of video modeling for improving the desired behavioral and social outcomes for students with autism.

**Conclusion**

There are many success stories of individuals diagnosed with Autism or with similar disorders who have overcome their disorders and are successful today. As documented by Ashcroft, Argiro and Keohane (2010) in one of their case studies, a student named Mindy had social problems with her peers and insisted on routines. After using many strategies such as social stories, cue cards and reinforcement to communicate and interact with others she is now more comfortable interacting with her peers in and out of school (Ashcroft et al., 2010, p. 7). Through the use of trial and error, teachers and parents can work together to determine the best strategy to use for individuals diagnosed with ASD.

Many questions emerged following the review of social stories and visual-based technology used with students diagnosed with ASD. Most of the questions center on which strategies work best for increasing appropriate interactions among children with autism and their typically developing peers. What tools are most effective for children with autism in the development of appropriate social skills and how can educator’s aid students that need help with communication skills, including students with autism. Central to any technique is the underlying
approach to present and encourage communication and developing the appropriate skills. The purpose of this research project was to determine what strategies and tools are being used with individuals with Autism Spectrum Disorders to overcome their difficulties and improve their learning.

**Method**

The purpose of this study was to determine the preferred intervention strategy teachers’ use for students with autism spectrum disorders. The knowledge educators have about social strategies, interventions and technology is important to developing effective and appropriate interactions for children with autism and their typically developing peers. This study assessed educators’ knowledge of specific strategies concerning social strategies/interventions, electronic interventions, and behavioral interventions used to develop appropriate interactions among children with autism and their typically developing peers.

**Participants**

Participants in this study were educators (teachers, college instructors, and members from a master’s level cohort) who reported having experience working with individuals diagnosed with autism spectrum disorders (ASD) ranging from 0 to 10 or more years of experience. Of the 92 surveys sent out, a total of 30 surveys were completed for a response rate of 28%. The participants reported having a variety of teaching experiences ranging from elementary education, middle childhood, to special education. Twenty eight of the thirty participants reported having experience teaching at least one student diagnosed with ASD during their career.

**Instrument**

In order to determine the preferred strategies and interventions of instructors of individuals with Autism Spectrum Disorders, a researcher-created survey was used consisting of
18 multiple choice and extended response questions regarding the preferred strategies and interventions of educators of individuals with autism spectrum disorders (Appendix A). The survey was created using Qualtrics, an online survey tool which allowed participants to click on a link included in an email and complete the survey online. Once completed, the data was electronically recorded and aggregated on the Qualtrics website www.qualtrics.com that could then be accessed by the researcher for analysis.

Procedure

Following approval by the university Internal Review Board (IRB) for the use of human subjects, the researcher emailed a combined invitation to participate and consent form to the principal of a local middle school in Southeastern Ohio, who then distributed the survey to approximately 42 teachers in the school. The email invitation was also sent to five professors at two local universities, and 20 master’s students in a cohort seeking licensure in special education as well as 25 graduate and undergraduate education majors who have worked with individuals with autism spectrum disorders. Once participants received the email and read the consent form, the email contained a link to take them to the survey. By clicking on the link, participants indicated their consent to participate. The participants were asked to complete the survey (that would take no more than 10 minutes to complete) within one week of receiving the invitation email. Then, after two weeks, a second email with the survey link was again sent to the non-respondents. Finally a third email was sent after another two weeks with the survey link to the non-respondents. The goal was then to have at least 30 responses to the survey.

Results

Email invitations to participate in the research were sent out to 92 instructors of individuals with autism spectrum disorders. A total of 30 responses were received. Of the thirty
participants who responded to the survey, 90% (n = 27) reported being teachers, while 6% (n = 2) indicated that they were guardians/parents of an individual with autism spectrum disorders. All respondents had higher education, most (n = 16) with a master’s degree. Table 1 show the level of education the participants received.

Table 1

*Respondents Highest Level of Education*

<table>
<thead>
<tr>
<th>Degree</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master’s Degree</td>
<td>16</td>
<td>55</td>
</tr>
<tr>
<td>BA Degree</td>
<td>12</td>
<td>41</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>High School</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Doctorate</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Licensure area and years of experience.* The areas the respondents were licensed to teach ranged from Intervention Specialist- math and social studies, multi-subject PK-8, Pre-K-3, Reading K-12, Intervention Specialist K-12, to Elementary Education. The number of years participants taught ranged from 1 or less years (14%; n = 4), 2 - 5 years (32%; n = 9), 6 - 9 years (14%; n = 4), with a majority in the 10 or more years of teaching (39%; n = 11). So there was a wide variety in the areas the participants taught and what experiences they would have with different age groups.

*Number of students taught.* Respondents were asked how many students they taught who were diagnosed with autism spectrum disorders (ASD) which ranged from 1 to an estimate
of at least 30 students with the majority having experience with at least one child diagnosed with ASD in their teaching career.

**Teachers’ preferred interventions.** Respondents were asked to indicate which intervention(s) they use in the classroom or at home with an individual with ASD. The participants could choose more than one answer. Results indicated the most used intervention was for behavioral issues. See table 2 for specifics.

Table 2

*Preferred Use of Strategy/Intervention in the Classroom or Home*

<table>
<thead>
<tr>
<th>Strategy/Intervention</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral interventions</td>
<td>26</td>
<td>96</td>
</tr>
<tr>
<td>Social strategies/intervention</td>
<td>25</td>
<td>93</td>
</tr>
<tr>
<td>Electronic interventions</td>
<td>14</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>241</td>
</tr>
</tbody>
</table>

**Teachers’ preferred social intervention.** Participants were also asked to select which social strategies/interventions they prefer to use with their students. Results indicated participants like to use social stories most often with their students followed closely by cooperative play. See Table 3 for specific results.

Table 3

*Preferred Social Strategies/Interventions Used with Students*

<table>
<thead>
<tr>
<th>Social Strategy/Intervention</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social stories</td>
<td>21</td>
<td>78</td>
</tr>
<tr>
<td>Cooperative play</td>
<td>20</td>
<td>74</td>
</tr>
</tbody>
</table>
Participants who selected “other” (15%) were prompted to explain their answer. Responses included, “Checklists, work station, picture schedules, wait chairs, choice boards, etc.” Another response indicated the participant allows students to lead activities.

**Most frequently used social strategy.** Next, participants were asked to indicate which social strategy/intervention their student(s) uses most often. The responses included: using the iPad (21%), cooperative (21%) and parallel play (13%), using a checklist (4%), social stories (30%) and video modeling (4%), observing (21%), and using the PECS communication system (4%). Seven out of the twenty two responded favorable for the use of social stories. Participants were then asked how often the student uses the social strategy/intervention, with the majority (63%) choosing daily as indicated in Table 4.

**Table 4**

*Effectiveness of the Use of Social Strategies/Interventions for Students with ASD*

<table>
<thead>
<tr>
<th>Use of Social Strategy/Intervention</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>15</td>
<td>63</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>Once a week</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2-3 times a month</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>
Students’ preferred social intervention. Next, to determine which social strategy/intervention the student(s) preferred to use, participants were asked to write in their response. The majority of the participants responded the iPad (40%; n = 8) as the most preferred strategy by their students followed by cooperative and parallel play (25%; n = 5), observing (20%; n = 4), video modeling (5%; n = 1), and using the PECS system (5%; n = 1).

Teachers’ preferred behavioral intervention. Table 5 shows teachers’ preferred behavioral interventions for students with ASD. The leading response was performance feedback and reinforcement as the preferred behavioral intervention for their students. One participant responded in selecting “other” and stated that they use self-monitoring and have set goals for each day and then indicate if the student met the goal at the end of each day.

Table 5
Effective Behavioral Intervention Strategies

<table>
<thead>
<tr>
<th>Behavioral Strategy/Intervention</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance feedback and reinforcement</td>
<td>22</td>
<td>81</td>
</tr>
<tr>
<td>Check in/Check out method</td>
<td>14</td>
<td>52</td>
</tr>
<tr>
<td>Stop and Think</td>
<td>13</td>
<td>48</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>188</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intervention Strategies</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a month</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Less than once a month</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>
Only one participant responded for the “other” selection and the participant stated,

My student is in 10th grade, we use self-monitoring. We have set goals and she marks if she met the goal for the day. End of the week she gets 10 points for a participation/behavior grade. This helps with her Reading and Math grade.

**Most frequently used behavioral strategy.** Participants were asked which behavioral strategy was used most often by the student(s) and the majority answered with performance feedback and reinforcement 63% (n = 14) followed by the check in/out method 27% (n = 6). They responded by indicating how often their student(s) use the behavioral strategy, with most participants choosing daily (n = 18) followed by using it at least 2-3 times a week (n = 6), and finally, 2-3 times a month (n = 1).

**Students’ preferred behavioral strategy.** Next, participants were asked to indicate which behavioral strategy/intervention their student(s) prefers to use and why. Most participants 47% (n = 10) stated that performance feedback and reinforcement strategy was most preferred by students. Some examples as to why include: “because it motivates him,” “if they get good feedback that goes towards their incentive in which they are working towards,” and “because they know they are working for something. They know what work, how much work and what they will get when the work is completed.” This was followed by the check in/out strategy (n = 5), the stop and think strategy (n = 3), and using a checklist (n = 1).

**Technology use.** To determine what types of assistive technology programs are used with students with ASD, participants were asked to provide an answer as to which tools they use (if any) with their students. Responses ranged from none 42% (n = 8) to using audio books 5% (n = 1), iPad 15% (n = 3), using picture/word cards 5% (n = 1) and using Proloquo 2 Go 10% (n =
When participants were asked what communication tool their students use most often, the most frequent response was the iPad (n = 7), followed by picture cues (n = 1) and Prologue 2 Go (n = 1). When asked how often they used these communication tools, fourteen of the thirty participants responded, with the majority of them choosing daily (42%; n = 6), followed by 2-3 times a week (n = 5). Finally participants were asked to indicate which communication tool(s) their student prefers to use. Of the 30, 11 participants responded to this question and again the iPad was a front runner (n = 6), followed by picture cards (n = 1) and the use of the computer (n = 1).

Discussion

Based on the results, it appears that the interventions teachers used most often with students diagnosed with ASD are for behavioral issues, followed closely by social issues. Using cooperative and observing strategies with students are the most preferred by the participants to teach specific skills. However, students prefer to use the iPad, observe, or use cooperative play to practice social strategies. Instructors use social strategies daily or at least 2-3 times a week.

The most frequently used behavioral intervention strategy is performance feedback and reinforcement followed by the check in/check out method. Instructors used this strategy daily or at least 2-3 times a week. Students preferred to use performance feedback and reinforcement because if they received good feedback it could go towards incentives they were working towards and it also provides them with motivation. The iPad was the teachers’ most popular response for assistive technology for use with students and students also liked to use it if they are given the choice. Many instructors used assistive technology daily with their students.

Implications for Practice

Follow a review of the literature and confirmed by this research project, it is very important that each child with Autism be treated as individuals. It is clear there is not one set
way that will work for every child, but there is evidence from the data that indicates some strategies and interventions tend to work better than others. It is important to identify with each child/student to ensure the best strategies and interventions are used that meets each one’s behavioral needs. Findings indicate that social stories, performance feedback and reinforcement, and the use of the iPads are beneficial for students with ASD. Participants indicated these strategies and interventions tend to work best because they are adapted to meet the needs of the student and can be developed for any child’s circumstances. For example, when using social stories educators can make the story fit any situation the child is having difficulties coping with, so that they begin to see through the stories the best ways to approach a given situation. In turn, these strategies and interventions can be implemented to improve the child’s services because not only are they learning alongside their child/student they are also learning the best ways their student learns in different situations. Additionally, when instructors learn about their students and the best ways to work with them to meet their needs, it can improve students’ outcomes for success in their future.

Implications for Research

Further research using a larger sample of participants might provide better insight into the preferred social strategies, interventions and technology used by instructors of individuals with Autism Spectrum Disorders (ASD). These strategies and interventions could potentially be beneficial for more educators to utilize and educators could employ these interventions and strategies with typically developing children as well. More reliable data could lead to professional development on educators’ preferred social strategies, interventions and technology on a national level. Limitations in this study were due to the small sample size. Educators would
benefit from staying informed and up-to-date as more research is published on different strategies and interventions to benefit children with autism and their typically developing peers.

**Conclusion**

The literature provides examples of strategies and interventions that can be implemented by those who work with individuals with Autism Spectrum Disorders. These strategies and interventions can benefit instructors that are new to the field of teaching or who are looking for new ideas, strategies, interventions, and technologies to use with their students. This research provides educators with an overview of how these strategies and interventions work and how they can be a beneficial part of their students’ learning process in overcoming their behavioral boundaries with their typically developing peers and how they too can have a chance to become successful in their own lives and futures. It would be beneficial for the students if the educators attend professional development workshops and classes on intervention strategies to use with students with autism spectrum disorders.
References


Appendix A

Preferred Strategies and Interventions Survey

Please select one. I am a __________ of a student(s) diagnosed with an autism spectrum disorder (ASD).

a. Teacher
b. Guardian/parent

What is the highest level of education you have earned?

a. High School
b. BA Degree
c. Master’s Degree
d. Doctorate
e. Other

What areas are you licensed to teach? Please provide an answer in the space provided.

How many years have you taught? Please select one of the following.

a. 1 or less
b. 2-5
c. 6-9
d. 10 or more

During your teaching career, how many students have you taught who were diagnosed with ASD? Please provide an estimate.
Do you use any or all of the following in your classroom or home with an individual with Autism Spectrum Disorder? Please select all that apply.

a. Social strategies/ interventions
b. Electronic interventions
c. Behavioral interventions

What social strategies/interventions do you prefer to use with your student? Please select all that apply.

a) Cooperative play
b) Parallel play
c) Social stories
d) Observing
e) iPad
f) other, please explain

If you selected other, please explain in the space provided.

Which social strategy/intervention does your student use most often?

How often does he/she use it?

a. Never
b. Less than once a month
c. Once a month

d. 2-3 times a month

e. Once a week

f. 2-3 times a week

g. Daily

Which social strategy/intervention does your student prefer to use? Why?

What behavioral intervention strategies do you use with your student? Please select all that apply.

a. Performance feedback and reinforcement

b. Check in/ check out method

c. Stop and think

d. Other, please explain

If you selected other, please explain in the space provided.

Which behavioral strategy/intervention does your student use most often?

How often does he/she use it?

a. Daily

b. 2-3 times a week

c. Once a week
Which behavioral strategy/intervention does your student prefer to use? Why?

What assistive technology programs do you use with your student for communication? Please provide a list of examples and explanation for each.

Which communication tool does your student use most often?

How often does he/she use it?

a. Daily
b. 2-3 times a week
c. Once a week
d. 2-3 times a month
e. Once a month
f. Less than once a month
g. Never

Which communication tool does your student prefer to use? Why?