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Parental perception of change in social skills and problem behavior in adolescents with Asperger’s syndrome and High Functioning Autism following a conversation skills group intervention

This work and its defense approved by:

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Parental perception of change in social skills and problem behavior in adolescents with Asperger’s syndrome and High Functioning Autism following a conversation skills group intervention

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By

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Committee Chair: Sandra Grether, Ph.D.
Committee Members: Donna Murray, Ph.D., Jo-Anne Prendeville, Ed.D. & Allison Smith
The purpose of this study was to determine how parents of children with Asperger’s syndrome and High Functioning Autism perceive changes in both problem behaviors and social skills following an intervention targeted at conversation skills.

The parents of seven participants were given the Problem Behavior Rating Scale (Stone et al, 1998) and the Social Skills Survey (Stone et al, 2000) prior to the first session of intervention. The intervention lesson plans were modeled after those used for social skills groups at the Kelly O’Leary Center for Autism at Cincinnati Children’s Hospital Medical Center. The intervention lasted six weeks, at the end of which the parents again filled out the PBRS and the SSS. Results were compared for six of the seven participants and it was found that no significant changes were reported by the parents of these children, using a t-test of significance. Limitations and future research will be discussed.
ACKNOWLEDGEMENTS

I would like to thank my committee members, Drs. Sandra Grether, Donna Murray, and Jo-Anne Prendeville and Allison Smith, for all of their support and assistance in making this document come to life. I have truly developed an understanding and appreciation for the research process and the importance of research in the field of speech language pathology. I would also like to thank the families who participated in this project for inspiring me to think more critically about service delivery and efficacy in speech pathology. Lastly, I would like to thank my husband, Frank. Without his dedication to me and to the completion of this journey, it would not have been possible.
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CHAPTER ONE

INTRODUCTION

The hallmark elements of impairment in Asperger’s syndrome, as defined by the DSM-IV, are impairment in social interaction, restricted, repetitive and stereotyped behaviors, interests and activities, no significant language delay and no significant delay in cognition (American Psychiatric Association, 2000). This definition implies that though children with Asperger’s syndrome have the cognitive and linguistic ability to maintain age appropriate educational and intellectual standing, their social skills may be severely below age appropriate, limiting their ability to maintain successful relationships. Because children with Asperger’s syndrome and High Functioning Autism do not have significant physical or intellectual deficits, it may be difficult for other children to understand that they have social deficits. Therefore, social errors that may occur are often interpreted as deliberate and of ill intent by peers, resulting in further barriers to the development of friendships (Attwood, 2000). This inability to forge lasting friendships can have future ramifications far beyond the social arena. Children without social competence have been found to be at risk for such school age problems as aggression, rejection by peers, academic failure and loneliness. Barry, Klinger, Lee, Palardy, Gilmore and Bodin (2003), administered the Loneliness Scale to a group of children with High Functioning Autism and discovered scores typical of “rejected children”, indicating significant feelings of loneliness in this group. These findings have been duplicated in other studies and some studies have even demonstrated high rates of co morbid depression in adults and adolescents with Asperger’s syndrome and High Functioning Autism (Barry, Klinger, Lee, Palardy, Gilmore & Bodin, 2003). Further, these problems
can progress into adulthood and result in difficulty maintaining employment and relationships with others, mental illness and even legal issues (Maag, 2005).

The language of children with Asperger’s syndrome and High Functioning Autism is typically marked by adequately intact syntax and morphology. For the most part, language milestones are met in the typical progression and within a typical timeframe (Bellon-Harn & Harn, 2006). It is social communication that is impaired, marked by pragmatic and prosodic difficulties, which are apparent in the conversational tendencies demonstrated by this population. Adams, Green, Gilchrist and Cox (2002) conducted a study comparing the conversational behavior of children with Asperger’s syndrome with a control group of children with conduct disorder. They found that while the quantity of responses during conversations was similar between the two groups, the group with Asperger’s syndrome demonstrated lower quality of responses and significantly more problems with pragmatics when compared to the control group. Children with Asperger’s syndrome demonstrated more difficulty in responses to ‘emotional’ conversations as compared to ‘neutral’ conversations, but there was no difference between the two conversation types in the control group (Adams et al, 2002). Children with any autism spectrum disorder may have a higher rate of requesting, protesting and non focused utterances than do their typical peers (Ziatas, Durkin & Pratt, 2003). It has also been found that children with Asperger’s syndrome use pedantic speech, talk too much or too little and demonstrate repetitive patterns of speech. They use a literal interpretation of meaning and have an idiosyncratic use of words (Ziatas et al, 2003). These language differences become obvious to peers and contribute to the negative social image of children with Asperger’s syndrome or High Functioning Autism.
For typically developing children, social skill development is occurring everyday at home, in school and in the community. For many of us, observing the interaction of others and then testing these models with peers is how we develop into socially competent individuals. This generalization of skills occurs across settings and people. We then use these skills to develop relationships with our peers. As we grow and develop, these relationships further play a part in the development of advanced social skills and cognition, which inevitably affect how we function as adults (Hartup, 1994). Hartup (1994) states that it is, “the adequacy with which the child gets along with other children”, that most closely predicts adult adaptation. It is the friendships that we form as children, therefore, that provide the forum for advanced social development. These friendships are based on affiliation and common interests, as well as reciprocity and a commitment to others (Hartup, 1994). Children with Asperger’s syndrome typically have restricted interests and difficulty demonstrating social or emotional reciprocity, which can make the development of true friendships extremely difficult (Barnhill, Cook, Tebbenkamp & Myles, 2002). Further, their interests are sometimes unusual, not age appropriate and not appealing to their typical peers. Combined with an inaccuracy in interpreting social cues and difficulty generalizing learned skills to other settings, children with Asperger’s syndrome and High-Functioning Autism are often unable to make the initial connections needed to form friendships (Barry et al, 2003). These early friendships provide emotional and cognitive resources for cooperative learning and modeling (Hartup, 1994). If opportunities for lasting friendship development are missed as young children, further social competence development is in jeopardy.
Since the development of social skills is at risk in children and adolescents with Asperger’s syndrome and High Functioning Autism, intervention designed to increase these skills is necessary. These children can typically be taught responses or scripts that tell them what to do in certain situations, though they may not understand why such things are correct (Attwood, 2000). This teaching can take many forms. Social stories, systematic Theory of Mind instruction and social skills groups have all been used with these children to increase social skills. However, limited scientific evidence exists about the efficacy of these interventions and their ability to allow children with autism to generalize the skills to settings outside the intervention group (Attwood, 2000). There are also no tools available that can accurately measure the outcomes of this type of intervention to help determine efficacy.

**Social Skills Groups**

Social skills groups conducted with adolescents and young adults with Asperger’s syndrome and High Functioning Autism have shown some success. These groups can focus on any aspect of social skill development and involve direct instruction, modeling and practicing or role-playing of skills in a safe, supportive environment (Attwood, 2000). Using a social skills group which included all of these elements, Williams (1989) conducted an early study addressing efficacy in this area. Over a four year period, 10 children with autism attended an after school social skills group once per week. Though his study did identify improvements in social skills, indicated by pre and post assessment using a social behavior questionnaire, no control group was used. Therefore, any improvement could be the result of natural development or schooling over the four years, not just the social skills group (Williams, 1989). Another study conducted by Ozonoff
and Miller (1995), used a social skills group to teach Theory of Mind. Theory of Mind is the ability to identify others’ thoughts, intentions and beliefs and is known to be a significant area of deficit in children with autism. Results of this study indicated an increase in mean score for the experimental group on Theory of Mind measures. No change was found in the control group on such measures. Though this clearly indicates some measure of success, the sample size was very small, limiting the validity of results. Results of the Social Skills Rating Scale administered to parents and teachers, showed no increase in either group indicating that though the experimental group was able to learn the necessary rules and strategies involved in Theory of Mind, they were not able to generalize them to other settings or apply them in real life situations outside of the social skills group (Ozonoff & Miller, 1995). This finding is significant since generalization is particularly difficult for these children but is also the most important element when considering social skills intervention.

Though the results of both these studies do not definitively point to the efficacy of using social skills groups, they do show a possible link between the groups and social or cognitive gains. Further, families and participants have reported that they found the groups beneficial and that meeting other children and their families with similar backgrounds was a positive experience (Attwood, 2000).

In a study conducted by Barnhill, Cook, Tebbenkamp and Myles (2002), children with Asperger’s syndrome and High-Functioning Autism were instructed in nonverbal communication using a social skills group. Though there was not statistically significant data to support that the children made gains in the target skills or that they were able to generalize the skills to interaction outside of the group, 50% of the participants had
contacted another member of the group several months after the intervention ended. Though this was not expressly the focus of the intervention, the children were able to form lasting friendships as a result of the social skills group (Barnhill et al, 2002).

Because these social skills groups must be small, it is necessary to continue building on the body of research in this area to obtain reasonably sound information about the successes and failures of social skills groups when used with children with Asperger’s syndrome and High Functioning Autism. The use of qualitative measures and descriptive studies is common in this area because there are currently no direct measures to determine participant learning (Webb, Miller, Pierce, Strawser & Jones, 2004). One way to measure possible changes and generalization of learned skills is through the use of parent questionnaires or interview. This form of parent reporting is often used to assess parental perceptions of behaviors and social skills before and after an intervention.

**Parent Reporting**

In a study conducted by Kolb and Hanley-Maxwell (2003), parents of adolescents with disabilities were interviewed regarding their beliefs about the development of social skills in their children. This group of parents identified two areas of social skill development, interpersonal/intrapersonal skills and character development, to be as important as academic progress in their children (Kolb & Hanley-Maxwell, 2003). This study demonstrates that parents have a vested interest in how their children develop as social beings and for that reason should be an integral part of the process of intervention when these social skills are areas of deficit. One way to include parents in this process when designing social skills groups is parent reporting. Parent reporting, particularly through the use of questionnaires, has been used in many different types of studies to gain
valuable information about parent’s perception of change in behaviors and the usefulness of using this type of intervention. In a study conducted to determine if social skills and recreational preferences differed between children with disabilities and children without disabilities, four different parent surveys were used including three that were designed specifically for the study. The Social Skills Rating System was administered to parents in order to determine their child’s social skill level. This study found parent reporting valid for the purposes of comparing these two groups of children and determining correlations between certain activities and social skill level (Cowart, Saylor, Dingel, Mainor, 2004).

Parent surveys have also been used to examine sleep patterns in children with pervasive developmental disorders. In this study, parents were asked to report about the sleep habits of their child and the responses were compared to a control group of children without disabilities. The authors found this an effective assessment for the study, though they did consider it more susceptible to validity issues than a physiological sleep assessment, such as an actigraph (Couturier et al, 2005).

Parent reporting can also be used to determine if skills are generalized outside of the school or clinic setting. This type of data is particularly important when looking at social skills since they are needed in many different types of situations and settings. When using social skills groups for intervention, it can often be difficult to determine if generalization of skills to other settings is occurring without the use of parent reporting or outside observations (Barry et al, 2003).
Purpose

The purpose of this study was to determine if the parents of children with Asperger’s syndrome and High Functioning Autism perceived any change in their children following a conversation skills group intervention.

Research Questions

Do parents perceive changes in the area of problem behaviors following the conversation skills group intervention? Do parents perceive changes in initiating interactions following the conversation skills group intervention? Do parents perceive changes in responding to initiations following the conversation skills group intervention? Do parents perceive changes in maintaining interactions following the conversation skills group intervention?
CHAPTER TWO

METHODS

This study was conducted as part of a larger study addressing changes in the communication behaviors of children with Asperger’s syndrome before and after a clinic-based conversation skills group treatment. The larger study examines conversation skills pre and post intervention and generalization of the targeted skills to the school setting. This portion of the study looks specifically at parent’s report of changes in the areas of problem behaviors, which were not targeted by the intervention, and social skills, some of which were targeted in the intervention and some of which were not directly targeted. Both of these areas were predicted to be effected by an increase in conversational ability, which is an expected outcome of this intervention.

Participants

The participants in the study included seven adolescents, ages 8 to 10 years old, with a diagnosis of Asperger’s Syndrome or High Functioning Autism. Participants were recruited through a local center for autism spectrum disorders and the local Autism Society chapter, both located in the Midwestern United States. All the participants were male. Though this was not necessarily the target demographic, no specific attempts were made to recruit female children with Asperger’s syndrome or High Functioning Autism. There is a 10:1 male to female ratio in this diagnostic area of Autism, therefore, the sample is representative of the population being examined (Gillberg, 1989).

Materials

The social skills groups were held in a pediatric treatment room in the local children’s hospital. The room was equipped with an overhead camera and the parents of
the participants were able to watch the sessions from an observation room. In addition, each session was filmed using a standard video camera in the corner of the room. Each child received a folder for homework assignments at the first session. Other materials such as board games, conversation starter cards and poker chips were used as needed throughout the sessions. A second video recorder and a television with a VCR were used for video modeling, in two of the six sessions. A talking stick was implemented during the first session to facilitate turn taking and help organize the group talk time.

The Problem Behavior Rating Scale and Social Skills Survey questionnaires of the TRIAD Social Skills Assessment (Stone, Ruble & Conrad, 1998) were administered to the parents prior to the first session and following the last session (Appendix A). The TSSA is a criterion referenced assessment used to gain information about social behavior from parents, caregivers, teachers and other professionals working with a child with autism. In a recent study conducted by Murray, Molloy, Willis and Ruble (2007), internal consistency of the TSSA was evaluated. Parent report reliability was found to be 0.92 and teacher report reliability was found to be 0.94 (Murray et al, 2007).

Specifically, the Problem Behavior Rating Scale identifies thirty behaviors that could negatively affect academic and social performance in children with Aspergers syndrome or autism. Parents are asked to rate the behaviors on a lickert scale from one to four. A rating of one indicates that parents do not find the behavior described to be problematic for their child. A rating of four indicates that the behavior is very problematic. In the present study, this questionnaire was given to parents prior to the intervention to determine what, if any, of these behaviors were perceived by parents to be problematic. The Problem Behavior Rating Scale was then given to parents following the
six week intervention to determine if any change was noted by parents. None of the thirty behaviors were directly targeted in the Conversation Skills Group.

The Social Skills Survey includes fifty one questions which yield both qualitative and quantitative information. Parents are asked to rate how well the child demonstrates certain skills on a lickert scale from one to four, one being not very well and four being very well. There were also some open ended questions that asked the parents to identify some of the child’s social interests and behaviors. For the purposes of this study, three of the four subsets of questions were examined: initiating interactions, responding to initiations and maintaining interactions. These three areas most closely match those targeted in the Conversation Skills Group. The fourth subset, affective understanding/perspective taking, was not included in this research. Each participant’s parent completed the Social Skills Survey questionnaire prior to and following the six week intervention. This measurement was used to assess perceived changes in participants’ social behavior following the intervention in settings outside of the treatment group and the participants’ school (i.e. home and community).

**Procedures**

The conversation skills group met once per week for a six week period. Prior to the first group meeting, each participant’s parent was given the Problem Behavior Rating Scale (Stone et al, 1998) and the Social Skills Survey (Stone et al, 2000) to complete. The groups were led by a doctoral candidate speech pathologist, with the assistance of a graduate speech clinician. A specific lesson plan template was followed each week. The template included:

- **Warm-up:** open conversation and review of homework
New Lesson at Table: introduction of a new skill related to topicalization or topic exchange (20 min)

Comprehension Check: of the children’s understanding of the new skill introduced (5 min)

Activity: Rehearsal and Application: modeling of the new skill and guided practice through role play or video modeling (20 min)

Game: review of the new skill in a game format (20 min)

Snack: practice of the skill during less structured time (15 min)

Homework: assignment of an exercise to use the new skill at home or school (5 min)

All sessions were recorded and further analyses of the recordings were made as part of the larger project. At the end of the six weeks, the parents were again given the Problem Behavior Rating Scale and the Social Skills Survey to complete. These forms allow the parent to rate specific behaviors on a lickert scale from one to five, five being the most problematic and one being the least problematic and to give qualitative responses in some areas. Both forms of answers are reported and compared to determine if the parents perceived any change in their children.

Data Analysis

The scores, pre and post, for the six participants on each of the four measures, the PBRS and three subsets of the SSS, were averaged to determine if there was a change in the group averages. These averages were then analyzed using the t-test of significance to determine if the changes were significant. Further analysis of the changes in individual participants’ scores was conducted using the z-score test of significance.
CHAPTER THREE

RESULTS

Responses from the Problem Behavior Rating Scale and subsets of the Social Skills Survey were analyzed from both quantitative and qualitative perspectives. Mean scores on the pre- and post intervention surveys were calculated and are shown in Tables 1-4. Participant seven is excluded in the data analysis because post intervention assessment was not available. This child’s family moved out of state during the six weeks.

Problem Behavior Rating Scale

On the PBRS, a decrease in score indicates that undesirable behaviors are perceived by the reporter or parents to have decreased in the child. It was hypothesized that if the children were able to engage in conversation more effectively, their use of problem behaviors would decrease. It has been shown that the use of social skills groups has decreased negative behaviors in children with emotional difficulties but never reported for children with Asperger’s syndrome or Autism (Tierney & Dowd, 2000). All but one participant experienced some degree of decrease in overall score following the six week conversation skills intervention. Though there was a decrease in the pre intervention (M = 62.17) and post intervention (M = 55.92) scores for the group, the change was not statistically significant, t = 1.91, critical value = 2.571, p<0.05. Statistical significance may have been negatively affected by the small sample size. Subject one and subject two demonstrated the most change in score on the PBRS. These subjects’ scores were analyzed using a z-score test of significance. It was determined that for subject one, z = 2.67 and for subject two, z = 3.58. Both of these scores would indicate significance at
the p =0.05 level. These subjects’ pre test scores were the highest of the six subjects (subject one = 73, subject two = 90) indicating that the parents of these children reported a high incidence of problem behavior prior to the intervention and so therefore their changes were perceived as greater.

Table 1  
*Participant Scores on the Problem Behavior Rating Scale (Stone et al., 1998)*

<table>
<thead>
<tr>
<th></th>
<th>PRE INTERVENTION</th>
<th>POST INTERVENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td>73</td>
<td>58</td>
</tr>
<tr>
<td>Subject 2</td>
<td>90</td>
<td>72</td>
</tr>
<tr>
<td>Subject 3</td>
<td>59</td>
<td>56</td>
</tr>
<tr>
<td>Subject 4</td>
<td>61</td>
<td>58.5</td>
</tr>
<tr>
<td>Subject 5</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>Subject 6</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>62.17</strong></td>
<td><strong>55.92</strong></td>
</tr>
</tbody>
</table>

**Initiating Interactions Subset**

On the Social Skills Survey, three subsets were analyzed for statistical significance. The first of these, Initiating Interactions, is a set of 11 questions and has a maximum score of 41. Scores for the pre test ranged from 17 to 27 and scores for the post test ranged from 15 to 28. The mean scores demonstrated almost no change pre (M=21.58) to post (M=21.67) for the group and no statistical significance was found, t=-0.08, critical value=2.571, p<0.05. The results of this subset are listed in Table 2.

Table 2  
*Participant Scores on the “Initiating Interactions” subset on the Social Skills Survey-P (Stone et al., 2000)*

<table>
<thead>
<tr>
<th></th>
<th>PRE INTERVENTION</th>
<th>POST INTERVENTION</th>
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<tbody>
<tr>
<td>Subject 1</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Subject 2</td>
<td>27</td>
<td>28</td>
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<td>Subject 3</td>
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<td>Subject 4</td>
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</tr>
<tr>
<td>Subject 5</td>
<td>20.5</td>
<td>25</td>
</tr>
<tr>
<td>Subject 6</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>21.58</strong></td>
<td><strong>21.67</strong></td>
</tr>
</tbody>
</table>
Responding to Initiations Subset

The second subset on the Social Skills Survey to be analyzed, Responding to Initiations, consists of five questions and has a maximum score of 20. Results of this subset are listed in Table 3. No statistical significance was found between the pre test group average (M=11.42) and the post test group average (M=9.92), \( t=1.97 \), critical value=2.571, \( p<0.05 \). On this subset, the group average decreased pre to post. This would indicate that the parents perceived their children to be less competent at responding to interactions following intervention. Only subject one made any increase, though this increase was only one point.

Table 3

<table>
<thead>
<tr>
<th>Participant Scores on the “Responding to Initiations” Subset of the Social Skills Survey-P (Stone et al., 2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Subject 1</td>
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<tr>
<td>Subject 2</td>
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<td>Subject 3</td>
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<tr>
<td>Subject 4</td>
</tr>
<tr>
<td>Subject 5</td>
</tr>
<tr>
<td>Subject 6</td>
</tr>
<tr>
<td><strong>Average</strong></td>
</tr>
</tbody>
</table>

Maintaining Interactions Subset

The Maintaining Interactions subset on the Social Skills Survey is a set of 11 questions with a maximum score of 44. Results of the pre and post assessment are found in Table 4. Almost no change was found for the group average pre (M=19.33) to post (M=19) and statistical significance was not found, \( t=.44 \), critical value=2.571, \( p<0.05 \). Two subjects demonstrated no change at all, two subjects demonstrated an increase in score of less than two points and two subjects demonstrated a decrease in score.
Table 4
Participants Scores on the “Maintaining Interactions” Subset on the Social Skills Survey-P (Stone et al., 2000)

<table>
<thead>
<tr>
<th></th>
<th>PRE INTERVENTION</th>
<th>POST INTERVENTION</th>
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</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td>22</td>
<td>22</td>
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<tr>
<td>Subject 2</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Subject 3</td>
<td>20.5</td>
<td>22</td>
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<tr>
<td>Subject 4</td>
<td>12.5</td>
<td>12</td>
</tr>
<tr>
<td>Subject 5</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Subject 6</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>19.33</strong></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>

Overall, results on these measures did not yield significant change following the conversation skills intervention group. In many cases, scores were found to decrease instead of increasing or staying the same as could have been predicted.
CHAPTER FOUR
DISCUSSION

When looking at the results of the measures used in this study, it is clear that no firm conclusion can be drawn. While it looks, overall, as if parents did not perceive any reasonable change in the behavior or social skills of their children, two of the subjects show a different pattern than the rest of the group. Subject one and subject two demonstrate positive change or no change on all measures, while the other subjects demonstrate unexplainable negative change in at least one area. Some possible reasons for these results will be explored.

On the Social Skills Survey, parents were asked to record the number of close friends their child has. Of the seven participants, only two parents listed friends, other than siblings, on the form. Subject one and subject five are each listed as having two close friends prior to the beginning of the conversation skills group. This may have been a contributing factor to the success of Subject one and two but they do not correlate, as subject two’s parent reported no friends beyond a sibling.

Parents were also asked to list organized peer group activities in which their child participated. This could also contribute to successful outcomes following the conversation skills intervention because children would have had additional, structured activities in which to “practice” the skills learned and would also be learning valuable social skills, indirectly, from these additional activities. Participation in other groups may also have provided the children with other skills that would benefit them in the conversation skills group. Subject one’s parent listed other social skills groups at this center, but no other group activities. Subject two’s parent listed other general activities
such as swimming lessons and Sunday school. Subject three’s parent also listed Sunday school and day camps. Subject four’s parent listed cello lessons and Cub Scouts and subject five’s parent listed swim lessons and choir. Subject six did not list any additional peer group activities. These additional activities do not appear to correlate to successful outcomes on the measures used in this study.

Parents were asked to rate how interested their child is in spending time with peers and making new friends on a lickert scale one to five, one being not very interested and five being very interested. On this measure, subjects one and two again do not appear to be similar. Subject one was rated at one in both interest in spending time with peers and interest in making new friends, while subject two was rated at four for both items. Subject three was rated at one for both items. Subject four was rated at three for both items. Subject five was rated at three for interest in spending time with peers and four for interest in making new friends. Subject six was rated at five for both items. The desire to interact with peers and make friends could have been an indication of success in the conversation skills group, but based on these results it does not appear to correlate to parents’ report of change in social skills or problem behaviors.

One other factor considered was the age of the child. The age of the child might have affected them during the intervention and also may have affected parental perception of appropriate behaviors on the rating scales. However, subject one and subject two were both nine years old at the time of the study which was the median age for the group. Children participating in the group were eight to 10 years old. It is not likely in this study that the age of the children had any affect on these measures, even
though the two subjects with the most positive change noted were the same age. Positive change can not be attributed to maturity or lack of maturity based on age.

Looking specifically at the Problem Behavior Rating Scale, both subject one and subject two scored significantly above the group average on the pre test (Group M = 62.17, Sub. one = 73, Sub. two = 90), indicating a higher incidence of problem behaviors than the rest of the group. Specifically, both subject’s parent reported a three or four on questions addressing acting impulsively, screaming/yelling, sudden mood changes, temper tantrums, low frustration tolerance, making negative statements about himself, expressing worry, having toilet accidents, ignoring/walking away from others during interaction, becoming upset if routines change and calming himself down when upset or excited. Arguably, these 11 items describe behaviors that could make positive social interaction more challenging for these two children. On the post test, few of these items were given a lower score by parents, indicating that though these two subjects may have had similar behaviors of concern prior to intervention, they did not make positive changes on these same items following the intervention.

Beyond looking at the individual participants, the questionnaires from the TSSA (Stone et al, 1998) should also be considered. Both the Problem Behavior Rating Scale and the Social Skills Survey ask parents to rate behaviors on a lickert scale and then these numbers provide a score that could be used to compare pre and post, as done in this study. In this study, parents reported the most change on the Problem Behavior Rating Scale, even though no significance was found. When the individual questions are considered, it is clear that the behaviors referred to on the Social Skills Survey are much more difficult to observe and to quantify than the behaviors on the Problem Behavior
Rating Scale. Another consideration is that the questionnaires from the TSSA (Stone et al, 1998) do not ask the right questions to allow parents to report smaller elements of change. The questions are too global to be used following an intervention of short duration, focusing on very specific, discrete skills. The type of change we would expect to see following a six week, conversation skills group intervention can not truly be measured using the TSSA (Stone et al, 1998) questionnaires.

Analysis of the data collected from the parent surveys is undeniably inconclusive. However, as will be further explained below, this study provides a starting point for future research in this area. With changes to the general design, more specific data from parents can be obtained and this information can be used to determine how effective social skills groups, such as this one, are in the eyes of parents.

**Limitations & Future Research**

Although the results of this research are not conclusive that parents perceived change in their child with Asperger’s syndrome or High Functioning Autism following the conversation skills instruction, many conclusions can be drawn and the need for further research in this area is apparent. First, the use of the Problem Behavior Rating Scale and the Social Skills Survey from the TSSA (Stone et al, 1998) may be investigated further. It is likely that the information obtained by the questionnaire is too global. Using this method of data collection, it may not be possible to detect the small measures of change that would be expected following a six week intervention focusing on specific social skills such as conversation. The TSSA has not been proven reliable and in fact no reliable instruments are available for measuring change in social skills. This is a major
area for future research because without reliable tools for measurement we can not definitively say that these social skills groups are efficacious or not efficacious.

The measure could be used to determine which children would benefit the most from conversation skills intervention. For example, in this research, subject one and subject two are the only participants to make improvements or stay the same across the four measures, as previously mentioned. All other participants’ parents reported a negative change in at least one area. Though this may not be related to characteristics in the children, it may be that these two subjects benefited the most from the intervention due to their needs in this area prior to intervention. As reported above, these two subjects made the most positive change on the Problem Behavior Rating Scale but they also had the highest incidence of problem behavior reported on the pre test. These results may indicate that children with Asperger’s syndrome and High Functioning Autism, who demonstrate the most difficulty with behavior, benefit the most, behaviorally, from conversation skills intervention.

Another option for attaining parental perceptions of change following social skills group intervention is a parent interview. An interview would allow parents to speak specifically about the areas of concern prior to the intervention and specific areas of change following the intervention. Interview questions can be specifically tailored to areas of behavior that are expected to change and social skills that are specifically taught during the intervention. This method of data collection, though qualitative, could provide a broad picture of change associated with conversation skills intervention and allow the evaluator to determine themes present in the parents’ responses.
The length of time of intervention for this research was six weeks. The short duration of the study may have affected the results. It may be that this length of time is not sufficient to see change in the children’s social and behavioral patterns. Future research may consider a six week group compared to an eight week group or compared to multiple six week sessions with one week breaks given between them.

Another possibility is that the parents were reporting pre and post information too close to the actual intervention and their responses were biased by their knowledge of the group’s goals. This may also account for the negative change expressed by some of the parents. Since the parents observed each session, they were aware of the goals of the group and the expectations of the researchers. They could have been responding to what they perceived to be an expected level of performance based on the parameters of the conversation skills group sessions. In future research, parents may not be permitted to watch the intervention sessions or the reporting parent may be the parent who did not view the sessions to prevent this type of bias. Another issue may be the time between intervention and the post intervention reporting. Behavioral changes may take longer to become apparent in the child. It may be beneficial to wait three or even six months post intervention to administer the parent questionnaire.

Lastly, the small sample size affects the results in any study of this variety. For this type of intervention, small groups of children are necessary to ensure that the intervention is implemented appropriately. The best way to gain more information in this area is to take similar data across many different groups and compare the results. In this way the overall sample size can increase over time and all the data analyzed in a similar fashion to determine if trends are occurring. Continuing to gain information about the
affects of intervention with children with Asperger’s syndrome and High Functioning Autism is the only way to determine if these interventions are appropriate.
REFERENCES


