THE EFFICACY OF SKILLSTREAMING SOCIAL SKILLS
PROGRAM WITH ELEMENTARY SCHOOL CHILDREN
WITH HIGH FUNCTIONING AUTISM

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to the Faculty of
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of the Requirements for the Degree
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in
Psychology:
Applied Psychology Option

by

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A Thesis
by
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ABSTRACT

THE EFFICACY OF SKILLSTREAMING SOCIAL SKILLS PROGRAM WITH ELEMENTARY SCHOOL CHILDREN WITH HIGH FUNCTIONING AUTISM

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The purpose of the present study was three fold. It was first designed to investigate whether Skillstreaming the Elementary School Child social skills curriculum could be effective in the development of social behaviors in children with High Functioning Autism or Asperger’s Disorder. Second, the effects of the Skillstreaming program on this population were compared to the implementation with children with Emotional Disturbance. Lastly, this study was to examine whether social skill growth could be made by increasing the frequency of the lessons, while shortening the overall duration of the intervention (twice weekly for four weeks). The study included a treatment group of eight children with High Functioning Autism or Asperger’s Disorder
and a control group of three students with an educational classification of Emotional Disturbance, ages ranging from 8-12 years old.

The results indicated that the youngest treatment group (ages 8-9) demonstrated significant improvements in social skills growth after treatment. Further, the control group as well as the youngest treatment group both demonstrated significant decreases of problem behaviors as rated by the teachers. Teacher and parent qualitative data supported significant findings in this study with consistent themes across all groups that were associated with more age appropriate conversation skills, increased peer interactions, increased awareness of nonverbal cues, cooperative play and turn-taking. This study highlights the need for more research in this area and supports longer duration of treatment as a more effective intervention.
CHAPTER I

INTRODUCTION

Background

Autism Spectrum Disorders (ASD) are devastating in that they affect several areas of functioning. The characteristics of ASDs are restricted and stereotypic interests, and impairments in social communication and social interactions (American Psychiatric Association, 2000). Among those whom demonstrate difficulties with these skills are individuals with High Functioning Autism and Asperger’s Disorder. These disabilities are dissimilar to other ASDs in that these individuals tend to demonstrate less severe early childhood language impairments and cognitive deficits (American Psychiatric Association, 2000).

Despite language and cognitive abilities, the one consistent and core impairment across ASD occurs in the development of reciprocal social interactions (American Psychiatric Association, 2000). These hallmark social impairments comprise eye-to-eye gaze, facial expressions, nonverbal cues and gestures to monitor social behaviors (American Psychiatric Association, 2000). Also, ASD includes difficulties with communication for social purposes. These may manifest as impaired ability to continue or initiate conversations. For example, individuals with ASD may demonstrate less management of conversation topics, focus on interests, demonstrate less turn taking in conversations, or fail to engage when spoken to (Jones & Schwartz, 2009; Rhea,
Orlovski, Marcinko, & Volkmar, 2009). These deficits result in children with autism spending less time in social environments leading to isolation. Although children with autism do not differ significantly in their interactions with adults, they are significantly impaired in frequency of interactions with same age peers (Koegal, Koegal, Frea, & Fredeen, 2001).

As children age and social interactions become more complex, individuals with ASD may experience greater social deficits and thus experience increased anxiety. Although it is commonly believed that children with autism are oblivious to their deficits, many individuals with autism are aware of their social weaknesses (Attwood, 2000). Tantam (2003) supported this finding and added that students tend to develop an increased awareness of their disability through high school as social interactions become more demanding.

Social deficits in individuals with ASD can result in additional emotional effects. It is typically assumed that children with autism prefer not to interact with peers and prefer isolation; however, many individuals with ASD often report a desire for more peer social interactions and express a greater sense of loneliness (Bauminger & Kasari, 2000). This increased awareness of social deficits may also be linked to anxiety; students with ASD who have reported elevated levels of anxiety have also reported greater feelings of isolation (White & Roberson-Nay, 2009).

Social impairments may also lead to indirect effects for individuals with ASD. Social skills have been associated with positive outcomes such as acceptance from peers, mental health and academic achievement (Hartup, 1989). Social deficits characteristic of ASD can affect interactions with peers, teachers and family members. Thus they may
also interfere with development of gratifying social interactions with peers and adults as well as meeting of developmental objectives (Krasny, Williams, Provencal, & Ozonoff, 2003).

Statement of the Problem

Current prevalence rates suggest that 1 in 110 children in the United States will be affected with ASD, which is an estimation of 1% of the population (Center for Disease Control and Prevention (CDC, 2009). Individuals diagnosed with ASD are more common by males- affecting approximately 1 in 70 boys and 1 of 310 girls (CDC, 2009). Such prevalence rates create increasing demands on school systems to provide appropriate services for this population using empirically supported treatment methods. Since reciprocal social interactions are a core area of impairment that results in negative effects to students with ASD, this is an area that needs to be addressed with intervention.

Recently, the National Standards Project (2009) developed by the National Autism Center conducted a comprehensive study evaluating scientific support for all intervention methods including behavioral, social, communication, motor skills, and placement to name a few. Intervention methods were divided into categories and several studies evaluated determining effectiveness. Interventions were then divided into three separate categories i.e., effective treatments, emerging treatments and unestablished treatments. The National Standards Project determined that these social skill packages were emerging treatments, meaning there was not yet enough empirical support to determine efficacy of such interventions.
Research in social skills treatments support this result and many have yielded mixed findings. A meta-analysis of school based social skill interventions implemented with children with autism reviewed 55 studies (Bellini, Peters, Benner, & Hopf, 2007). The meta-analysis indicated that social skill interventions resulted in low treatment effects, however moderate generalization effects were found for curriculums targeting specific skills such as initiations and social responses (Bellini et al., 2007).

These findings create a conundrum for educators who have an ethical and legal responsibility to provide students with empirically supported interventions that address deficit areas for children with ASD. Although many reviews of such social skills programs indicate low treatment effects, many of these demonstrate limitations that cloud the results. For example, both the National Standards and the meta-analysis incorporated dated research in their reviews. Further, neither study is an exhaustive review of all interventions. When researching specific curricula to implement, there is a lack of empirical evidence to support or disprove the use of commonly used programs in education.

Purpose of the Study

The present study aims to provide additional research regarding the efficacy of social skill curricula. The previously cited studies conducted research on a limited number of programs and the purpose this study was to determine the effectiveness of a particular social skills program that is commonly implemented in the educational setting with a variety of children. The expectation is that the inclusion of this program’s use with children with ASD to the literature base will provide support for the continued use of social skills intervention for this population.
The current study had several goals. It was first designed to investigate whether Skillstreaming the Elementary School Child (Goldstein & McGinnis, 1997) could be effective in the development of social behaviors defined as conversation skills, initiating peer interactions, nonverbal awareness and cooperative play. Second, the effects of the Skillstreaming program on this population were compared to implementation with children with Emotional Disturbance (ED). Lastly, this study was to examine whether social skill growth could be made by increasing the frequency of the lessons, while decreasing the overall length of the intervention.

Theoretical Bases and Organization

Skillstreaming the Elementary School Child is a psychoeducational intervention using four principals of learning including modeling, role playing, feedback and transfer (Goldstein & McGinnis, 1997). These principles are foundational to Vygotsky’s Sociocultural Theory. The application of his theory is useful in the development of social skills suggesting that students learn tasks within their own zone of proximal development with the assistance of a more skilled adult or peer (Berk, 2009; Shaffer, 2002). According to this theory, learning occurs through scaffolding or shaping of and adjusting the level of support to meet the learner’s needs; it is essential in teaching a host of emotional, social and cognitive skills (Berk, 2009; Shaffer, 2002). In fact, evidence supports that children learn many skills through the principles of socio-cognitive development including conversation and/or language skills, emotional awareness and attention (Charman, et al., 2001; Morales, et al, 2000).
Limitations to the Study

Although this research will be beneficial by adding to the limited evidence on efficacy of social skills curriculum, there are limitations to this study. One flaw of the study is that a small sample was used. This can affect the ability to determine significance. Essentially, small sample sizes can affect the ability to determine effect size, or the degree to which the independent variable affects the dependent variable (Sparta, 2003). This effect of the small sample size is common in social skills research due to the nature of working with a specific population. To attend to this methodological flaw, both quantitative and qualitative data was obtained.

Another potential concern that needed to be addressed for the study is that this research is attempting to measure social skill growth in a population that has social skill deficits. Although, students may demonstrate change or difference after treatment, they will still have the deficits that define their disability. To address this potentially problematic limitation, a reliabilities change index (RCI) was used to determine social skills growth. The RCI quantifies social significance without over-representation of the data (Gresham, 2005).

Another limitation to the study was that it was conducted towards the end of the school year. This timing may have affected the student’s behavioral performance and subsequently, scoring on the quantitative measures. Despite this limitation, the study will provide valuable information and attempt to address limited research in this area. Reinforcement principles were utilized for every session to elicit maximum cooperation from the participants. In addition, the researcher provided the parents and teachers with
lesson plans and home school notes so that the students would have multiple opportunities to practice skills taught during social skill sessions.

Definition of Terms

To more clearly understand the various aspects of this study, a list of important and frequently used terms will be defined.

- Autism Spectrum Disorder or (ASD) is a common term that is used interchangeably with Pervasive Developmental Disorders. ASD is used to describe individuals with Autism, Asperger’s Syndrome and Pervasive Developmental Disorders-Not Otherwise Specified (PDD-NOS) (Benaron, 2009). It can be defined as those “individuals who interact poorly, not being able to take part in conversations, or not making eye contact; the use of odd gestures; becoming upset at changes in routine or having nonfunctional routines” (Gresham & Elliot, 2008, p.2).

- Asperger’s Disorder is defined as impairment in social interactions and demonstration of repetitive behaviors. Asperger’s Syndrome can be differentiated from Autism by a lack of early language deficits (American Psychiatric Association, 2000).

- Externalizing refers to “being verbally or physically aggressive, failing to control temper, and arguing” (Gresham & Elliot, 2008, p.2).

- High Functioning Autism is defined as those with the main impairment in reciprocal social interactions, repetitive behaviors and early language deficits; however, these children have cognitive functioning similar to peers on a normative developmental trajectory (Rao, Beidel, & Murray, 2008).
- Conversation Skills include the ability to begin and end conversations appropriately. The beginning conversation skills include: choosing age appropriate topics, taking turns, and choosing a good time. The skills for ending conversations included: deciding what to say, waiting until another person stops talking and using “friendly” nonverbal communication (Goldstein & McGinnis, 1997).

- Cooperative Play is defined as the skills needed for playing a game. The sub-skills that were address knowing the rules, deciding who starts the game using fair methods, turn-taking, and when the game is over saying something nice to the other person (Goldstein & McGinnis, 1997).

- Initiating Interactions is defined as joining in. The sub-skills address deciding to join in, deciding what to say, choosing a good time and not interrupting others. Also, nonverbal cues were incorporated; many of the sub-skills address including eye contact, facial expressions, gestures, and tone of voice (Goldstein & McGinnis, 1997).

- Educational Classification of Autism differs slightly from the clinical criteria for Autism. The California Education Code defines Autistic Behavior as follows:

  a pupil exhibits any combination of the following autistic-like behaviors, to include but not limited to: 1) an inability to use oral language for appropriate communication. 2) A history of extreme withdrawal or relating to other people inappropriately and continued impairment in social interaction from infancy through early childhood. 3) An obsession to maintain sameness. 4) Extreme preoccupation with objects or inappropriate use of objects or both. 5) Extreme resistance to controls. 6) Displays peculiar motoric mannerisms and motility patterns. 7) Self stimulating, ritualistic behaviors (California Department of Education, 2007, p. A14).

- Educational Classification of Emotional Disturbance. The California Education code defines
a pupil with Emotional Disturbance as exhibiting one or more of the following characteristics over a long period of time and to a marked degree which adversely affects educational performance: 1) an inability to learn which cannot be explained by intellectual, sensory, or health factors. 2) An ability to build or maintain satisfactory interpersonal relationships with peers and teachers. 3) Inappropriate types of behavior or feelings under normal circumstances exhibited in several situations. 4) A general pervasive mood of unhappiness or depression. 5) A tendency to develop physical symptoms or fears associated with personal or school problems (California Department of Education, 2007, pp. A14-15).

- Internalizing behaviors are those that include “feeling anxious, sad, and lonely; exhibiting poor self esteem” (Gresham & Elliot, 2008, p.2).
- Problem behaviors were defined by the five domains of problems behavior composite on the Social Skills Improvement System including externalizing, bullying, hyperactivity/inattention, internalizing, and autism spectrum (Gresham & Elliot, 2008).
- Social skills were defined as the ability to participate in conversation skills, cooperative play, initiating interactions, engaging in interactions and awareness of nonverbal cues (Goldstein & McGinnis, 1997).
CHAPTER II

LITERATURE REVIEW

Introduction

In the evolution of identification of disabilities, knowledge of autism is still in its infancy. Many have contributed to the understanding of this mysterious disability and several attempts have been made to unravel the puzzling nature of Autism Spectrum Disorder (ASD) and the social interaction impairments that define them. This chapter will review current diagnostic criteria including the early history of the disorder, hallmark social deficit characteristics, and current research on social interventions.

Diagnostic Criteria for Autism

Autism was originally defined in 1943 by Leo Kanner, who wrote an article entitled “Autistic Disturbances of Affective Contact” which discussed characteristics of 11 children. This seminal article helped to shape current definitions of autism disorders by reporting that these particular students demonstrated “autistic aloneness,” the tendency to ignore, shut out or fail to respond to their social environment (Benaron, 2009; Kanner, 1943). In 1956, Kanner proposed the criteria which consisted of five characteristics: a lack of affective contact towards others; an obsessive desire for sameness; fascination for objects; mutism, or language that does not serve the function of interpersonal
communication; and the retention of an intelligent and pensive facial appearance (Benaron, 2009).

In another part of the country, unaware of Kanner’s work with these children, Hans Asperger was also noting distinct characteristics of a group of children marked by social weaknesses (Benaron, 2009). Asperger referred to the disability as “autistic psychopathy,” which much later became known as Asperger’s Syndrome (Goldstein, Naglieri, & Ozonoff, 2009). Three key features included: relatively intact speech with the exception of pragmatic deficits, odd one-sided social interactions, and a tendency to focus on topics of interest and demonstrate repetitive behavior (Benaron, 2009; Goldstein, et al., 2009).

These original observations and proposed characteristics evolved to what is currently defined as autism. Current diagnostic criteria for autism include qualitative impairments in social interactions, impairments in communication, and restricted, repetitive and stereotyped patterns of behavior (American Psychiatric Association, 2000). The following provides the criteria as determined by the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000):

A) A total of six (or more) items from (1), (2), and (3), with at least two from (1), and one each from (2) and (3)
   (1) Qualitative impairment in social interaction, as manifested by at least two of the following:
      1. marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction
      2. failure to develop peer relationships appropriate to developmental level
      3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g. lack of showing, bringing, or
pointing out objects of interest to other people).
4. lack of social or emotional reciprocity

(2) Qualitative impairments in communication as manifested by at least one of the following:
1. delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
2. in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
3. stereotyped and repetitive use of language or idiosyncratic language
4. lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

(3) Restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least two of the following:
1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
2. apparently inflexible adherence to specific, nonfunctional routines or rituals
3. stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole-body movements)
4. persistent preoccupation with parts of objects

(B) Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years:
   (A) social interaction
   (B) language as used in social communication
   (C) symbolic or imaginative play

(C) The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder. (American Psychiatric Association, 2000, p. 75)

Social Deficit Characteristics for High Functioning Autism and Asperger’s Disorder

Two notable conditions, Asperger’s Syndrome and High Functioning Autism are related conditions. Current diagnostic criteria for Asperger’s Syndrome requires impairments in social interactions and repetitive and stereotyped behaviors; however general language skills are within the average range (American Psychiatric Association, 2000):
(A) Qualitative impairment in social interaction, as manifested by at least two of the following:
   1. marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction
   2. failure to develop peer relationships appropriate to developmental level
   3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., lack of showing, bringing, or pointing out objects of interest to other people)
   4. lack of social or emotional reciprocity

(B) Restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least two of the following:
   1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
   2. apparently inflexible adherence to specific, nonfunctional routines or rituals
   3. stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
   4. persistent preoccupation with parts of objects

(C) The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.

(D) There are no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).

(E) There are no clinically significant language delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.

(F) Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia. (American Psychiatric Association, 2000, p. 84)

High Functioning Autism is a term that is now commonly used among researchers in the field; however, it is not included in the American Psychiatric Association definition of ASD. Those determined to have High Functioning Autism demonstrate deficits in social interactions and language/communication skills in addition to exhibiting stereotypic or repetitive behaviors (Rao et al., 2008). However, these individuals are differentiated in that they retain cognitive functioning similar to typically developing peers (Rao et al., 2008).
Description of Social Deficit Characteristics

Across all ASDs, the hallmark characteristic is the deficits in social interactions (American Psychiatric Association, 2000). The DSM-IV-TR describes the impairment in reciprocal and social interaction as “marked impairments in the use of multiple nonverbal behaviors (e.g., eye-to-eye gaze, facial expressions, body posture, and gestures) to regulate social interaction and communication” (American Psychiatric Association, 2000, p. 70).

Children with ASD demonstrate extreme difficulties in the development of same age peer relationships. It may be the case that young children may not demonstrate an interest in such interactions; however, as they mature they tend to develop an interest in social experiences with peers, although may lack the skills necessary to do so (American Psychiatric Association, 2000).

Children with High Functioning Autism and Asperger’s Disorder demonstrate another disadvantage with regard to social interactions. Their ability to communicate for social purposes is significantly impaired. The area that is a common impairment in ASD is the ability to reciprocate in social interactions. For instance, the ability to monitor topics, engage in conversations, follow conversations focusing on interests and provide enough information to keep the other person engaged are essential for social communication (Jones & Schwartz, 2009; Rhea, Orlovski, Marcinko, & Volkmar, 2009).

Impacts of Social and Communication Deficits

These social deficits demonstrated in children with High Functioning Autism and Asperger’s Disorder can lead to many effects. Contrary to Kanner’s original
description of children with autism which suggested children were satisfied with isolation, children with High Functioning Autism tended to report an interest for increased socialization with peers. Children with ASD tend to spend more time in isolation due to social impairments and are significantly impaired in their interactions with peers (Koegal, et al., 2001). Further, it has been reported that children with ASD have poorer social support and express more loneliness than children from a normative developmental trajectory (Bauminger & Kasari, 2000; Bauminger, Shulman, & Agam, 2003).

It has also been suggested that anxiety is prevalent in children with ASD. Parent reports indicate that this anxiety is associated with these children being less likely to initiate interactions with same age peers (White & Roberson-Nay, 2009). Further, students with ASD and social disability were associated with parent reported withdrawal and depression (Ghazuiddin, Ghazuiddin, & Greden, 2002; White & Roberson-Nay, 2009). Finally, children with ASD are also four times more likely to be the victims of bullying when compared to other children (Little, 2002).

The results of social impairments can also be indirect, although still harmful to the development of this population. These social deficits can affect all social interactions. Poor self-esteem or self-efficacy relating to relationships, negative attitude towards people, and lower life satisfaction can be indirect effects of social impairments. Thus, these impairments interfere with the development of adequate peer and family relationships (Krasny et al., 2003).
Interventions for Social Deficits

Given the potentially devastating effects of social impairments on children with High Functioning Autism and Asperger’s Disorder, social skill training programs that are implemented early in childhood may prevent or reduce decreased social functioning (Rao et al., 2008). It is increasingly important to analyze available treatments and interventions addressing this need. Unfortunately, much of the current research on social interventions has been mixed. The review of recent literature incorporates studies that determined low treatment effects, and reviews that suggest moderate treatment effects and successful social skill intervention methods. This section will review three meta-analyses (Bellini et al., 2003; National Autism Center [NAC], 2009; Rao et al., 2009) in addition to looking a select group of studies focusing on social skill intervention efficacy.

The National Standards Project conducted by the NAC reviewed many studies on a variety of interventions including target areas of behavior, social, communication, and motor skills to name a few. Interventions were reviewed and then divided into categories based on efficacy. The three categories included effective treatments, emerging treatments and unestablished treatments. Effective interventions essentially were defined as those intervention methods that research determined to be effective interventions. Emerging treatments were stated as those that required additional research and high quality studies to determine treatment effectiveness. Unestablished treatments were defined as those for which there was little or no evidence in the literature that allowed drawing conclusions supporting effectiveness (NAC, 2009).
The NAC defined social skills packages as interventions that seek to build social interactions with children with ASD by targeting basic responses, for example, eye contact, response to complex social skills and how initiate or maintain conversation (NAC, 2009). The National Project determined that these social skill packages that are commonly used in educational settings to address social skill weaknesses were emerging treatments. This finding suggested that there was still inadequate research in this area to determine that social skill packages are useful and empirically supported intervention methods for children with ASD.

There were, however, a couple of limitations to the study. The first was that the studies reviewed were not a comprehensive and exhaustive review of the social skill literature. Additionally, many of the studies that were reviewed for this study were quite dated. Out of the 16 studies that were investigated, 11 of these were conducted before the 2000 with many of these were research studies developed during 1980s (NAC, 2009).

There are several current studies that investigate using social skill packages implemented with children with ASD. Many studies span varied settings and the methods in which the social skills interventions are delivered has been done using a traditional behavioral model in either a classroom or clinical setting. One such study conducted by Sansoti and Powell-Smith (2006) used social stories to address specific social skill weaknesses in three boys, ages ranging from 9 to 11 years, with Asperger’s Syndrome. The stories were based on parent and teacher interviews, and the content included playing sports, conversation skills and joining in activities. The results indicated positive results for two of the three boys in the targeted social skills.
Another study, developed by Tse, Strulovitch, Tagalakis, Meng and Fombonne (2007), evaluated the effectiveness of social skills intervention for 46 adolescents with High Functioning Autism. The ages ranged from 13 to 18 years. The duration of the study was 12 weeks and the social skills program targeted eye contact, introducing oneself, conversation skills, listening, dealing with teasing and bullying to name a few. Groups met at a clinic, however, to increase generalization one group was conducted at a restaurant to practice taught skills. To determine social skill growth measures of the Social Responsive Scale were used. The results indicated significant social skill growth on parent rating of social competence and problem behaviors. A limitation to this study is that they did not incorporate a comparison control group.

A study conducted by Soloman, Goodlin-Jones, and Anders (2004) investigated social skills training over a 20 week period. This was a randomized experimental study in which 18 males, ages ranging from 8 to 12 years, were either randomly chosen to participate in a twenty week social skills program or to a control waitlist group. The sessions were comprised of two 10-week social skills sets. The social skills addressed were emotional awareness, friendship, conversations skills, and problem solving skills. Also, incorporated was a parent education group discussing treatment objectives and parenting approaches to support this goal. The results indicated that compared to the waitlist control group, the treatment group demonstrated significant gains in emotional understanding, and real life problem-solving tests.

A school-based social skills program was implemented by Bauminger (2002). Teachers executed the program with 15 students with High Functioning Autism. The intervention addressed emotional understanding, social interaction, and social cognition.
The program duration was 3 hours a week for a 7 month period. In addition, the students were teamed with a trained peer each week to practice the taught skills. The effectiveness of the program was determined through observations of the interactions between the students with High Functioning Autism and the trained peer. The results indicated significant growth in the areas of verbal expression of interest in the peer, sharing, and eye contact. Further, teacher pre- and post- Social Skill Rating System (SSRS) ratings revealed significant increases on cooperation and assertion.

A review of social skills intervention research with children with Asperger’s Disorder and High Functioning was developed by Rao and colleagues (2008). Their review included 10 studies investigating social skills interventions. This review suggested a majority of this research demonstrated significant growth in social skills. The results revealed that 7 of the 10 (70%) social skills training programs demonstrated significant findings; 3 of the 10 studies, however, did not demonstrate social skills growth (Rao et al., 2008).

Although research in the area of social skills is growing, a great deal of research has not been conducted for the commonly used program Skillstreaming the Elementary School Child (Goldstein & McGinnis, 1997) with children with ASD. Most of the research that exists depicts positive outcomes for children with behavioral disorders.

One such study found that using the Skillstreaming the Adolescent program was successful in decreasing outcome measures of time-out referrals pre-and post-treatment (Seferian, 1999). Another study conducted by Boberg (2001) resulted in mixed findings in implementing the Skillstreaming the Adolescent program with a group of
sixth grade students; the results were determined by the pre and post treatment measures of the SSRS. The study found that the use of the Skillstreaming the Adolescent program to increase pro-social behaviors indicated a slight increase in parents’ ratings of social behaviors; however, overall there was no evidence to support its use (Boberg, 2001).

In review of studies for the use of the program for children with ASD, only one article was found. Kamps, Leonard, Dugan & Delquadri (1992) implemented Skillstreaming with three students with autism to increase peer interactions. The study included three male first grade participants with autism. The outcomes of the study were measured by observations of the students during play group sessions. The results indicated that Skillstreaming was a useful program to increase the frequency of time engaged in and duration of social interaction for children in play groups.

The Skillstreaming the Elementary School Child social skills program is one that is commonly used for children in educational settings for children with ASD. However, limited research exists to support its use for children with ASD. The present study examines the efficacy of the Skillstreaming program by implementing this program with three treatment groups of children with High Functioning Autism and Asperger’s Disorder and a control group of children with an educational classification of Emotional Disturbance.
CHAPTER III

METHODOLOGY

Design of the Investigation

The purpose of the present study was three fold. It was first designed to investigate whether Skillstreaming the Elementary School Child (Goldstein & McGinnis, 1997) could be effective in the development of social behaviors in children with High Functioning Autism and Asperger’s Disorder. These social skills were defined as initiating interactions, engaging in interaction with peers, conversations skills and awareness of nonverbal cues. These skills were further delineated by the skills of the program including friendship making skills including introducing oneself, beginning and ending a conversation, joining in, playing a game, offering to help a classmate, giving and accepting a compliment, and suggesting an activity.

Second, the effects of the Skillstreaming program on this population were compared to implementation with children with Emotional Disturbance (ED) chosen for similar social deficits. Lastly, this study was to examine whether social skill growth could be made by increasing the intensity of the lessons, while decreasing the duration. This was accomplished by reducing the program to four weeks, and providing two lessons a week.
To answer these research questions, a quasi-experimental design was used. Three experimental groups were created in which the intervention was provided by one individual. The experimental groups consisted of one group consisting of two children and two groups of three children with High Functioning Autism. After 4 weeks of treatment, twice a week, with one additional introductory lesson; the children’s social skills growth in the experimental groups was compared to the control group receiving the same treatment. The control group consisted of 3 children with an educational classification of ED.

Pre- and post- quantitative data consisting of teacher Social Skill Improvement System rating scales (SSIS) were used to measure outcomes (Gresham & Elliot, 2008). Also, qualitative data was collected using caregiver and teacher structured interview forms to determine treatment effects on the skills taught from the Skillstreaming curriculum.

The researcher providing the social skills curriculum was a Pupil Personnel Services School Psychology graduate student. The training received by the researcher consisted of individual and group counseling as well as in the implementation of social skills curriculum. In addition, the experimenter had three years of general working experience with this specific population, as well as prior experience implementing social skill programs with children diagnosed with ASD.

Population

The participants in this study were all identified from four different school sites within a school district located in northern California. All children included in the
study were from elementary schools. Three experimental groups and one control group were utilized.

For the experimental groups, seven of the eight students who participated in the these group were attending second through fifth grade public education classrooms and ranged in ages from 8 to 12 years, old. Seven of the eight students participating had received a prior diagnosis of High Functioning Autism or Asperger’s Disorder by outside agencies as determined by the Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, Dilavore, & Risi, 2000). The ninth participant had received an educational classification of autism based on IDEA classification criteria. Table 1 lists the general characteristics of the participants in all the experimental groups.

Table 1

Experimental Group Demographics

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Age</th>
<th>Grade</th>
<th>Gender</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>9</td>
<td>2nd</td>
<td>Male</td>
<td>Autistic Disorder</td>
</tr>
<tr>
<td>Participant 2</td>
<td>12</td>
<td>5th</td>
<td>Male</td>
<td>Asperger’s Syndrome</td>
</tr>
<tr>
<td>Participant 3</td>
<td>11</td>
<td>4th</td>
<td>Male</td>
<td>Autistic Disorder</td>
</tr>
<tr>
<td>Participant 4</td>
<td>11</td>
<td>5th</td>
<td>Female</td>
<td>Autistic Disorder</td>
</tr>
<tr>
<td>Participant 5</td>
<td>10</td>
<td>4th</td>
<td>Male</td>
<td>Asperger’s Syndrome</td>
</tr>
<tr>
<td>Participant 6</td>
<td>12</td>
<td>4th</td>
<td>Male</td>
<td>Autistic Disorder</td>
</tr>
<tr>
<td>Participant 7</td>
<td>8</td>
<td>1st</td>
<td>Male</td>
<td>Autism (IDEA Classification)</td>
</tr>
<tr>
<td>Participant 8</td>
<td>9</td>
<td>2nd</td>
<td>Male</td>
<td>Autistic Disorder</td>
</tr>
</tbody>
</table>
The control group, by which the experimental groups were compared, was comprised of three children with the educational classification of Emotional Disturbance (ED). This population was chosen due to similarities in lack of social skills to that of children with autism as well as similar cognitive functioning. The students ranged from third to fifth grade, with ages ranging from 9 to 12 years. Table 2 lists the characteristics for the control group.

Table 2

Control Group Demographics

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Age</th>
<th>Grade</th>
<th>Gender</th>
<th>IDEA Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>12</td>
<td>5th</td>
<td>Female</td>
<td>ED</td>
</tr>
<tr>
<td>Participant 2</td>
<td>9</td>
<td>3rd</td>
<td>Male</td>
<td>ED</td>
</tr>
<tr>
<td>Participant 3</td>
<td>10</td>
<td>4th</td>
<td>Male</td>
<td>ED</td>
</tr>
</tbody>
</table>

Treatment

Procedure

Before the implementation of the study, written consent from the district was provided by the director of special services (Appendix B). Next, a full human subject review was conducted to determine that the study would not cause harm to the participants. Once the human subjects review board approved the study (Appendix A), the next step was to gain support of district administration, teachers and relevant staff. To accomplish this, meetings were held at each school site including principals, vice principals, school psychologists, special education teachers, and general education
teachers. Each school approved the study and consented to participate. Next teacher and school psychologists referred students based on appropriate criteria.

For the treatment groups, participants must have been clinically/medically diagnosed as Autistic or assigned an educational classification of Autism. The second criterion was a referral from the school psychologist or special education teacher as a student who would benefit from social skills training. Twelve referrals were made for students with High Functioning Autism or Asperger’s Disorder. Parents were contacted and provided a complete description of the study, its objectives, and review of Skillstreaming curriculum (Goldstein & McGinnis, 1997). As a part of the consent (Appendix C), parents were required to allow the primary researcher access to the last psychological report as well as the Autism Diagnostic Observation Schedule scores to confirm the educational classification. Lastly, all participating adults with educational rights were asked to give consent (Appendix D) and fill out pre- and post-treatment measures. Of the twelve referrals, eight students received parent and teacher consents to participate in the study.

With regard to the control group, students were required to have an educational classification of ED based on a school evaluation and IDEA classification criteria. The second criterion was related to selecting fewer students demonstrating predominantly externalizing behavioral characteristics and choosing more students demonstrating predominantly internalizing behavioral characteristics to avoid counterproductive conflicts. The researchers and classroom teachers worked together and great care was taken to develop a group of children classified as ED that were based on severity of need as well as create a safe learning environment for all students. Four
referrals were made to participate in the control group. After the referrals were made, parents were contact and given a comprehensive explanation of the study, its objectives, and review of Skillstreaming curriculum (Goldstein & McGinnis, 1997). Parents were asked to sign a consent (Appendix C) in which they permitted the primary researcher to receive a copy of the last Psychiatric report to confirm the educational classification. Finally, the teachers were asked to give consent to complete both pre- and post-treatment measures for the referred students (Appendix D). Three of the four referrals for the control group received both caregiver and teacher consents to participate in the study.

Once consent forms were signed and collected, data collection began. Teachers were given pre-intervention measures of the SSIS teacher report forms (SSIS-T). In addition, the teachers were given pre-intervention structured interview forms to complete (see Appendix F). Parents were mailed pre-intervention structured interview forms (Appendix E).

All four groups met for four weeks, twice a week with an additional introductory lesson. The lessons that were discussed included introducing oneself, beginning conversation, ending a conversation, joining in, playing a game, asking a favor, offering to help a classmate, giving a compliment, and suggesting an activity. Every week a School/Home note went home with the students describing the lessons for the week and tips to increase generalization. These lessons and home/school notes were derived from the Skillstreaming program, for more information refer to this resource.

On the initial meeting, the students and the researcher developed clear and concise rules which were written on a poster and utilized every session. After the discussion of rules of behavior, the researcher explained the format of the sessions
including defining the skill, modeling, establishing student skill need, role-playing, performance feedback, and homework. To address behaviors, the students were given a name card each week. When the students demonstrated following the rules of the group, the students were given stars on their name card. Each week the goal for stars increased and an appropriate goal was determined by the members of the experimental groups. The students were reinforced for meeting the goal by choice from a reinforcement menu each session. In the control group, the students were given reinforcement for making positive constructive comments to other students since children classified with emotional disturbance tend to have difficulty with this skill and the teachers identified this skill as a severe need.

After the last session, post-intervention measures of the SSIS-T were administered. Also, parents and teachers were both mailed interview forms (see Appendices E and F). Teacher and parent forms were collected the following week. Parents who did not return the form participated in a structured interview with the researcher using the questions on the form.

**Instruments**

Two instruments were used in the present study. The Social Skills Improvement System (Gresham & Elliot, 2008) rating scale was utilized to determine progress for initiating interactions, cooperative play, engaging in interactions and conversation skills. A qualitative interview form was utilized to gather qualitative information regarding initiating interactions, cooperative play, engaging in interactions and conversation skills. All teachers of the participants, whether assigned to experimental
or control groups, completed two administrations (pre- and post-treatment) of these instruments.

Social skills improvement system. The SSIS is a revision of the Social Skills Rating System (SSRS; Gresham & Elliot 1990) which had been used over the past 18 years by practitioners, and researchers. The SSIS includes updated norms, improved psychometric properties, and improved alignment of content across raters (Gresham & Elliot, 2008). The SSIS is a rating system designed to measure social skills in children ranging in age from 3 to 18 years. Parent and teacher forms are available at all developmental levels: preschool, kindergarten through sixth grade, and seventh through twelfth grade.

The SSIS rating scale provides a broad, multi-rater assessment of student and social behaviors that can affect teacher-student and parent-child relations, peer acceptance, and academic performance. It is a useful tool when making decisions concerning screening, classification, intervention planning and outcome evaluation (Gresham & Elliot, 2008). The Social Skills Composite of the SSIS assesses seven domains: Communication, Cooperation, Assertion, Responsibility, Empathy, Engagement, and Self-Control. Table 3 provides definitions for the domains as well as an item breakdown for the Social Skills Composite. Further, the SSIS focuses on five domains of the Problem Behaviors Composite: Externalizing, Bullying, Hyperactivity/Inattention, Internalizing, and Autism Spectrum (Table 4).

The SSIS reliability was determined by using internal consistency for parent scales ranging from .73 to .90. Teacher rating scale internal consistency scores ranged from teachers .82 to .94. (Gresham & Elliot, 2008). To support further the reliability, test
Table 3

*Social Skills Domains with Definitions from the SSIS*

<table>
<thead>
<tr>
<th>Domain</th>
<th>Definition</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Taking turns when speaking to others and making eye contact. Also includes using gestures and appropriate tone of voice and being polite (i.e., saying please and thank you).</td>
<td>7</td>
</tr>
<tr>
<td>Cooperation</td>
<td>Helping, sharing, and following the rules and directions.</td>
<td>6</td>
</tr>
<tr>
<td>Assertion</td>
<td>Initiating interactions (i.e., asking others for information, introducing oneself, and responding to others).</td>
<td>7</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Showing respect for property or work and the ability to communicate with adults.</td>
<td>6</td>
</tr>
<tr>
<td>Empathy</td>
<td>Showing concern for others’ feelings and values.</td>
<td>6</td>
</tr>
<tr>
<td>Engagement</td>
<td>Joining into activities with peers and inviting others to play, starting conversations, making new friends, and interacting with others.</td>
<td>7</td>
</tr>
<tr>
<td>Self Control</td>
<td>Responding to conflicts (i.e., disagreement or teasing and situations without conflict (i.e., taking turns and compromising).</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 4

*Problem Behavior Composite with Specific Domains from the SSIS*

<table>
<thead>
<tr>
<th>Domain</th>
<th>Definition</th>
<th># of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externalizing</td>
<td>Using verbal or physical aggression, losing temper, and arguing with adults.</td>
<td>12</td>
</tr>
<tr>
<td>Bullying</td>
<td>Forces or pushes other to do something they do not want to do, being verbally or emotionally aggressive, and excluding others.</td>
<td>5</td>
</tr>
<tr>
<td>Hyperactivity/Inattention</td>
<td>In constant motion, being impulsive, and getting distracted easily.</td>
<td>7</td>
</tr>
<tr>
<td>Internalizing</td>
<td>Feelings of sadness, anxiety, loneliness and demonstrating low self esteem.</td>
<td>7</td>
</tr>
<tr>
<td>Autism Spectrum</td>
<td>Having difficulty interacting with others, not engaging in conversations, or making eye contact. Having difficulty with nonverbal cues (i.e., gestures) or showing strict adherence to routines.</td>
<td>8</td>
</tr>
</tbody>
</table>

re-test scores for teacher rating scales were .84 to .85 (Gresham & Elliot, 2008). The SSIS was found to have adequate convergent validity for the parent forms when compared to the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 2004) and the Vineland Adaptive Behavior Scales, teacher rating form (Sparrow, Cicchetti, & Balla 2005). Further support for convergent validity is discussed across all age groups; subscales are generally in the .30’s to .40’s (Gresham & Elliot, 2008). Divergent validity was found to be acceptable with correlation coefficients of .20’s to 30’s. These scores, when using Cronbach’s alpha definition of low, moderate and high correlation values (Cronbach, 1951), indicate that the SSIS can be used as a screening/monitoring tool.

**Structured interview.** In addition to the SSIS, success was monitored by parent and teacher pre-and-post-treatment interviews. These interview questions were adapted from Sattler (Sattler & Hoge, 2006). These questions focused on several aspects of social skills deficits typical of children from the autism spectrum including impairments in eye contact, social initiation, joint attention, cooperative play, perseveration on topics of interest as well as conversation initiation. The questions were open ended to allow parents and teachers to elaborate on skills; some examples include: When you are speaking to your child/student, how often does he/she make eye contact with you? Does your child/student engage initiate cooperative play in a one-on-one setting? Please explain how your child/student does in a group setting? (see Appendix E and F).

**Intervention Program**

Skillstreaming the Elementary School Child (Goldstein & McGinnis, 1997) program was chosen for this study due to the focus of the program addressing the social skill needs of students who display aggression, immaturity, withdrawal, or other problem
behaviors. These impairments in reciprocal social interactions are typical of children with a diagnosis of ASD. These impairments may include little sharing of pleasure of achievements, or interests of others, lack of social or emotional reciprocity, difficulty holding conversations, play that is not appropriate for developmental level, unreasonable insistence on sameness and following familiar routines (Goldstein & McGinnis, 1997).

The Skillstreaming approach utilizes modeling, role playing, performance feedback, and transfer (homework). Students develop competence in dealing with interpersonal conflicts and learn to use self-control. This is accomplished with the leader guiding the group through nine steps: define the skill, model the skill, establish student skill need, select a role player, help to establish and set up the role play, conduct the role play, provide performance feedback, assign skill homework, and select the next role player. The Skillstreaming approach allows the skills being taught to be modeled not only by the adult leader, but also peers within the group, and the students are receiving feedback during this process (Goldstein & McGinnis, 1997).

The curriculum contains 60 skill lessons and includes five skill groups: Classroom Survival Skills, Friendship-Making Skills, Dealing with Feelings, Alternatives to Aggression, and Dealing with Stress. For the purpose of this study, the researcher focused on the second skill set, i.e., friendship-making skills. This skill set incorporates 12 lessons which included introducing oneself, beginning conversations, ending a conversation, joining in, playing a game, asking a favor, offering to help a classmate, giving a compliment, suggesting an activity, and sharing and apologizing. Due to the increasing frequency and reduction in duration of the study, the first nine lessons were
selected as key skills identified as weaknesses for the population of students with ASD as well as with ED.

This decision was made by discussing skill need with teachers and parents. To ensure treatment integrity, the Skillstreaming approach as outlined above, was administered every session. Also, the recommended strategies for group management were followed according to the behavioral guidelines in the program. Finally, all additional forms such as the School/Home note were taken from the program.

The groups met for a total of nine lessons. One introduction group was held the first week, then the groups met twice a week for the remaining four weeks. Each lesson duration ranged from 40-45 minutes, as recommended in the Skillstreaming approach. In these sessions, students had the opportunity to practice the skills taught within the group. Additionally, the School/ Home note that is incorporated in the program was utilized, which was taken from the Skillstreaming additional forms. Each week, both parents and teachers were given handouts that incorporated the skills and the breakdown of how the skills were taught. This was to encourage home/school collaboration as described by Goldstein and McGinnis (1997).

For each lesson, positive reinforcement as described in the Skillstreaming curriculum was used as an effective method of managing behaviors in the social groups. The seven steps of the lesson, incorporated guidelines to implementing reinforcement. The researcher applied these steps, executing them as described in the curriculum. At the end of every session students had choices of tangible, social reinforcers for participation and prosocial group behaviors which included pencils, stickers, erasers and student recommended choices. Rules and procedures were also applied according to the
recommended guidelines in the curriculum “rules for the use of rules” and research-based practices from behavior literature (Greenwood, Hops, Delquadri, & Guild, 1974; Sarason, Glaser, & Fargo, 1972; Walker, 1979 as cited in Goldstein & McGinnis, 1997). Some of these include the following:

1) Define and communicate rules for student behavior in clear, specific, and especially, behavioral terms.
2) Tell students what to do, rather than what not to do.
3) Communicate in a manner that will help students memorize them.
4) Following the rules is more likely when students have participated in their development, modification, and implementation.
5) Effective rules for rules are a) are developed before group instruction begins; b) that they be fair, responsible and within the students’ capacity to follow; c) that all the members of the group understand them; and d) that they be applied consistently and fairly to all group members (Goldstein & McGinnis, 1997, pp. 30-31).

Data Analysis Procedures

The quantitative data was measured using the SSIS scores assessed potential growth in the area of social skills and problem behaviors. This growth will be defined in terms of Reliability Change Index (RCI) when examining pre- and post-test of SSIS scores. This statistical method was developed by Jacobson and Traux (1991). The RCI is calculated by subtracting an individual’s posttest score on an outcome measure from his/her pre-test score. This score is divided by the standard error of difference between post-test and pretest scores (Jacobson & Traux, 1991). The RCI calculation of pre-test and post-test scores (Jacobson, & Traux 1991) is:

\[
RCI = \frac{(pre - treatment\_score) - (post - treatment\_score)}{S_{diff}} = 1.5
\]

where

\[
S_{diff} = \sqrt{2S_E^2} \quad \text{and} \quad S = SD\sqrt{1-r_{xx}}. \quad \text{Alternatively,} \quad RCI = S_{diff(1.5)}.
\]
Jacobson and colleagues (1991) defined two criteria to determine significance. The first is that the pre-and-post treatment test score exceeds the RCI. The second is that the post treatment score fall within the range of normative value. The normative value for this study was set at 1.5 standard deviations from the mean (Ferguson, Robinson, & Splain, 2002). The RCI quantifies social significance without allowing the data to be over-represented (Gresham, 2005).

The RCI signifies the number of points needed on a measure to determine that the change from a pre- to post-test is the result of treatment change, and not due to chance variation (Gresham, 2005). The research has found that although many treatments for psychiatric disorders or behavioral issues resulted in changes between the treatment and control groups, many of the participants receiving the treatment remain impaired (Ferguson et al., 2002). For example, in the present study the participants receiving treatment, or students with Autism, may demonstrate significant change, however will still demonstrate symptoms of Autism. Thus, the question is whether the students will demonstrate enough of an improvement after treatment to be found statistically significant. The RCI index was developed to detect and quantify such differences.

Pre-and-post qualitative interviews were analyzed using the Psychological phenomenology method (Creswell, Hanson, Clark Plano, & Morales, 2007). This method is accomplished by recognizing an occurrence. Then qualitative data is taken on participants who have experienced this. The next step is to analyze the data distinguishing significant testimonials. Then, these statements are combined into themes, which describe significance and the reported changes (Creswell et al., 2007). This approach was followed in this study with pre-and-post structured interviews that were first analyzed by
analyzing the qualitative data and identifying significant statements; these analyzed comments were developed into themes. Themes were considered significant when they were consistently demonstrated across all groups.
CHAPTER IV

RESULTS

Presentation of Findings

The purpose of this study was to examine if students with High Functioning Autism or Asperger’s Disorder made social skills growth gains with a four week implementation of the Skillstreaming Social Skills curriculum (Goldstein & McGinnis, 1994). The social skills growth was compared to a control group of children with an educational classification of Emotional Disturbance. Two types of data were used to determine social skills growth that occurred between the two groups. First, pre- and post-scores on the Social Skills Improvement System (SSIS-T) from the classroom teachers were compared to determine differences. Secondly, qualitative data was gathered using pre- and post- structured interviews. This information was analyzed, and findings depicted consistent themes across all groups.

Quantitative Data

To explore the quantitative differences from pre- to post-test of the scores on the SSIS-T in the treatment and control groups, the Reliable Change Index (RCI) was used for two scores: Social Skills Composite and the Problem Behavior Composite. The SSIS parent forms were administered; however, only 2 of the 11 parents returned the SSIS parent forms thereby making this data unobtainable. The criteria to demonstrate
significance were set $z$-score greater than or equal to 1.5 (Ferguson et al., 2002). For the Social Skills Composite, the RCI findings revealed that only one of the three treatment groups demonstrated statistically significant results on the Social Skills Composite ($z=1.94$). However, the control group and two other treatment groups did not meet statistical significance for the Social Skills Composites over the four week treatment period. These findings indicate that only the youngest group, showed significant increases in pro-social behaviors on the SSIS teacher report rating scales. Table 5 depicts the data and RCI statistic for the Social Skills Composite for all groups.

Table 5

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean of Pre (SD)</th>
<th>Mean of Post (SD)</th>
<th>$Z$ –Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>92</td>
<td>89</td>
<td>.86</td>
</tr>
<tr>
<td>Treatment 1</td>
<td>80</td>
<td>76</td>
<td>.45</td>
</tr>
<tr>
<td>Treatment 2</td>
<td>84</td>
<td>86</td>
<td>.62</td>
</tr>
<tr>
<td>Treatment 3</td>
<td>80</td>
<td>87</td>
<td>1.94</td>
</tr>
</tbody>
</table>

Whereas only one of the groups reached significance on the Social Skills Composite of the SSIS-T, when analyzing the Problem Behaviors Composite from the SSIS-T, several significant results were found. The control group demonstrated a significant reduction of problem behaviors ($Z=1.85$). Further, the third treatment group also reached significance for reduction in problem behaviors ($Z=1.80$). The results
suggest that whereas teachers did not recognize significant differences in pro-social skills, significance was noticed in a reduction of social difficulties resulting in classroom tribulations. The RCI results for the Problem Behavior Composite are listed in Table 6.

Table 6

*RCI Scores for Problem Behaviors Composite from the SSIS-T*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean of Pre</th>
<th>Mean of Post (SD)</th>
<th>Z-Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>41</td>
<td>31</td>
<td>1.85</td>
</tr>
<tr>
<td>Treatment 1</td>
<td>32</td>
<td>31</td>
<td>.13</td>
</tr>
<tr>
<td>Treatment 2</td>
<td>30</td>
<td>31</td>
<td>1.51</td>
</tr>
<tr>
<td>Treatment 3</td>
<td>54</td>
<td>48</td>
<td>1.80</td>
</tr>
</tbody>
</table>

This data demonstrated that over a four week period, the youngest treatment group demonstrated significant social skills growth. After analyzing the Problem Behaviors Composite, two groups showed a significant reduction in problem behaviors. Although quantitative significance was demonstrated in two of the groups, qualitative interview forms demonstrated several consistent themes of social skill growth across all treatment and control groups.

**Qualitative Data**

In addition to the pre- and post- treatment SSIS-T forms, structured interviews were collected from teachers and parents before and after the intervention. The responses to questions were qualitatively analyzed addressing nonverbal communications skills,
engaging in interactions with peers, and conversation skills. The results revealed several themes across the control and treatment groups. Both the teacher and parent interviews focused on increased conversation skills, increased interactions, awareness about social cues and cooperative play. In general parent/caregiver comments of increased skills were consistent with teacher reports. Teacher responses will be discussed first followed by themes from the parent responses.

**Conversation skills.** For the purpose of this study, the researcher defined conversation skills as an individual being able to begin and end conversations appropriately. The beginning conversation sub-skills included: choosing age appropriate topics, taking turns, and choosing a good time. (Goldstein & McGinnis, 1997). The sub-skills for ending conversations included: deciding what to say, waiting until other person stops talking and using “friendly” nonverbal communication. Teachers confirmed increased conversation skills with statements such as:

- Conversation topics have become more appropriate with less emphasis on mental health to focus on family and pets.
- The student has started taking more social interest, engaging in more conversation.
- The focus of conversations had changed from imaginary friends and video games to more age appropriate topics.
- Conversations have changed from imaginary topics and both students understand others feelings and interests more.
Conversations changed from being unaware to noticing gender/age appropriate topics like haircuts, clothes, and feelings. Parents supported these trends when stated:

- Conversations changed to more age appropriate topics.
- Conversations became more gender appropriate, talking about clothes, hair, and making compliments.
- Conversations were less focused on video games and superheroes and more of age appropriate topics.

These statements were significant across all groups. Teachers and parents noted that students’ conversations had become more suitable with more discussion of age appropriate topics and generally more socially acceptable behaviors. Further both parents and teachers noted that they noticed the increasing frequency of students engaging in conversation with same age peers on a variety of appropriate topics (e.g., pets, haircuts, and clothes) while time spent discussing imaginary topics decreased.

**Increased peer interactions.** There was also a theme of increased initiating of interactions across all groups. Initiating interactions was defined as joining in (Goldstein & McGinnis, 1997). The sub-skills that were addressed included deciding to join in, deciding what to say, choosing a good time and not interrupting others. The researcher also re-introduced talking in a “friendly way” discussing nonverbal communication. Teachers supported this when stated:

- Amount of time spent alone decreased by 10%.
- Time spent alone started at 95% and decreased to 80%.
- Playing alone has decreased to about 50%.
The student had extreme difficulty making friends, however, is now attempting to join others.

- The student is taking a more social interest.

Many parents noted that students demonstrated more interest in interacting with others when stating:

- Has started joining in more with kids his age.
- Has started playing more with other kids in the home.
- Has started joining in games with neighborhood children more.

Several teachers noted that time spent alone had decreased. This finding was significant with teachers across groups noting that time alone had decreased an average of 10%.

Further, comments included the students were attempting to engage in interactions more frequently with their peers, which was also reflected in the caregivers’ reports that the participants demonstrated increased interest in interacting with peers.

**Nonverbal social cues.** During several treatment sessions, nonverbal cues were addressed. These skills were defined as “talking in a friendly way.” Many of the sub-skills addressed included eye contact, facial expressions, gestures, and tone of voice. Many teachers suggested that students demonstrated greater nonverbal cue awareness when noted:

- Student initially had difficulty understanding nonverbal cues, however changed to the child understands nonverbal cues.
- Nonverbal cue understanding went from no to sometimes.
- Not able to had changed to can if is attending and has eye contact.
• Eye contact changed from rarely to often.

Parents supported this when stating:

• Understanding of nonverbal cues went from no to sometimes.

• Understanding of nonverbal cues went from not able to; changed to can if is attending.

• Pays more attention to nonverbal cues.

Overall, teachers reported that students’ awareness of nonverbal cues, including eye contact, increased after participation in the Skillstreaming lessons. Parents noted specifically noted that nonverbal social cue awareness increased including facial expressions, tone of voice, and gestures.

Cooperative play. The last theme that was common across treatment and control groups was identification of increased cooperative play. This skill was defined as playing a game. The sub-skills that were addressed were to know the rules, decide who starts the game using fair methods, turn-taking, and when the game is over say something nice to the other person. Teachers supported increased cooperative play skills with statements such as:

• Cooperative play went from no to yes.

• Can participate in cooperative play, however, can become overwhelmed.

• Taking turns increased from no to sometimes.

• Taking turns improved.

Parents supported this when stating:

• Does not get as upset when playing with cousins and loses a game.
- Has started taking turns more when playing with other children.
- Plays less aggressively, and is more patient when playing with others.

Comments of teachers and parents noted that cooperative play skills increased across all groups. Also, several teachers suggested that the skill turn taking also increased in students’ peer interactions. These comments suggest that the students were able to engage in play interactions with peers with increased frequency after participation in the Skillstreaming groups. Parents tended to notice increased sportsmanship when playing games with others.

**Discussion of Findings**

The first research question addressed in this study was to determine if the Skillstreaming program could be effective in the development of social behaviors in children with High Functioning Autism and Asperger’s Disorder. Specific social behaviors that were targeted included: as introducing oneself, beginning a conversation, joining in, and nonverbal cue awareness.

The results of the study demonstrated that the Skillstreaming social skills curriculum was effective at increasing peer interactions, age appropriate conversations, nonverbal awareness and cooperative play in children with High Functioning Autism and Asperger’s Disorder. However, only one treatment group demonstrated a significant increase on the social skills composite of the SSIS-T during the four week treatment period. Interestingly, the group that showed significant increases in social skills during the study was the youngest group, ages ranging from 7 to 9. This finding supports that providing earlier intervention may provide greater gains in a shorter period of time. In
addition, the skills that were being addressed such as joining in, playing a game, turn
taking, and conversation skills are skills that second and third grade teachers may have
been more closely monitoring since these are skills frequently addressed at these grade
levels.

Inconsistent social skill findings may also reflect the difficulty of social skill
growth of increasing intensity and reducing the duration of treatment period. Many of the
comments of parents and teachers noted that the students would have benefitted from a
longer duration of social skills treatment. Furthermore, the measure used may not have
been appropriate in sensitivity to slight social changes in Children with High Functioning
Autism. The SSIS is a commonly used measure of social skill use (Gresham & Elliot,
2008) and assesses broad behaviors associated with the development of social skills.
However, the measure does not measure less overt social behavior associated with
reciprocal interactions that are a common deficit in children with autism. The measure
was originally developed to assess typically developing children with behavioral
problems and not children on the autism spectrum (Gresham & Elliot, 2008; White,
Keonig, & Scahill, 2007).

The lack of consistent statistical significance may reflect the fact that large
and continuous changes in behavior are required before these changes are reflected on
social measures (Gresham, 2005). Essentially, the social changes that occurred may have
been too slight to be detected by the measure used. Further, an increase of positive social
behaviors may have been less detectable by the raters, whereas a decrease in negative
behaviors is more noticeable. In other words, teachers may have had difficulty in
observing the increases of social behaviors that were represented on the SSIS. However,
since teachers are often the persons responsible for addressing negative behaviors, and intervening on problems related to social difficulties, decreases in negative behaviors would be more noticeable. This explanation was supported with the findings in the study that more groups demonstrated significant findings in a reduction of problem behaviors as addressed on the SSIS.

Whereas the quantitative data was inconsistent, the results of the teacher and caregiver interviews supported significant findings in this study. The consistent themes across control and treatment groups that were associated with the teacher and caregiver reports indicated that the students developed more age appropriate conversation skills, increased peer interactions, increased awareness of nonverbal cues, cooperative play and turn-taking.

Teachers noted that across groups students’ conversations became more appropriate and less focused on mental health issues or imaginary topics. Students also demonstrated an increase in spending time with same age peers. Across raters there was an average decrease of 10% time spent in isolation. Further comments indicated that students demonstrated an increase of nonverbal cue awareness. Many of these reports suggested that students demonstrated increased eye contact, a deficit commonly associated with autism spectrum. Interviews also indicated that cooperative play increased with students demonstrating greater turn-taking skills and joining in with peers. In addition, teacher comments also suggested that the fact that the students went with the group leader every week, and knew her by name indicated successful treatment for some students.
Parent reports indicated that students demonstrated increased interactions with peers and turn taking. These skills were specifically addressed in the lessons *Joining In* and *Playing a Game*. Caregivers remarked that students were engaging more frequently with same age peers, spent less time playing alone by an average estimated 10%. The other consistent finding is that the students demonstrated an increased awareness of nonverbal cues.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of the present study was to investigate several research questions. It was first designed to investigate whether Skillstreaming the Elementary School Child (Goldstein & McGinnis, 1997) could be effective in the development of social behaviors defined as initiating interactions, cooperative play, conversations skills and nonverbal awareness for elementary school children with High Functioning Autism or Asperger’s Disorder. Also, the effects of the Skillstreaming program on this population were compared to implementation with children with Emotional Disturbance (ED). Further, this study examined whether social skill growth could be made by increasing the frequency of the lessons, while decreasing the duration of the overall intervention.

To investigate these questions, three treatment groups of children with High Functioning Autism or Asperger’s Disorder ages ranging in age from 8 to 12 were included in the study. The students were chosen to participate in the Skillstreaming the Elementary Child program based on severity of need. The treatment group was then compared to a group of children with an educational classification of Emotional Disturbance. The treatment and control groups participated in the Skillstreaming the
Elementary School Child intervention program for five weeks. Each session was approximately 45 minutes in duration and followed the guidelines of the program. General process of the sessions included: reviewing homework of the previous week, defining the skill, modeling the skill, establishing student skill need, selecting a role player, helping to establish and setting up the role play, conducting the role play, providing performance feedback, and assigning skill homework.

Treatment effects were measured using pre-and-post administrations of the Social Skills Improvement System teacher rating scales (SSIS-T; Gresham & Elliot, 2008). Further, growth was determined by using pre- and-post qualitative interview forms, completed by teachers and parents.

The results of this study were mixed. Only the youngest treatment group demonstrated a significant increase on the social skills composite of the SSIS-T during the four week treatment period. This finding supports the importance of providing early intervention to increase gains in deficit areas. However, there were no other significant social skill improvements depicted in the quantitative data for the other groups.

Two groups demonstrated significant reduction in problem behaviors. The control group and again, the youngest treatment group, both demonstrated significant decreases in problem behaviors from pre-to-post administrations of the measure. These findings suggest that decreases in problem behaviors due to social difficulties were more noticeable to teachers, rather than social skill growth.

Qualitative interviews before and after treatment supported social skill growth after participation the Skillstreaming the Elementary School Child program. Both teachers and parents reported consistent themes across control and treatment groups that
indicated the students demonstrated more age appropriate conversation skills, increased peer interactions, increased awareness of nonverbal cues, cooperative play and turn-taking.

In comparison for the ED control group, findings were consistent. The control group did not gain significance in the social skills in on the SSIS-T similar to the two out of three treatment groups. However, also similar to the experimental groups, these students displayed significant results on the qualitative interviews in the areas of increased conversation skills, peer interactions, nonverbal social cues and cooperative play. In addition, this group was similar to one of the experimental groups in significantly demonstrating a reduction in problem behaviors as rated by teachers on the SSIS-T.

The final purpose of the study was to determine if significant social skills gains could be made by increasing intensity and reducing the duration of treatment period. The study resulted in inconsistent findings, suggesting that students demonstrate greater gains with longer duration of exposure to social skills interventions. Inconsistent findings may indicate that longer treatment time is essential in the development of social skills; it is recommended that future research to include longer durations of treatment.

Limitations to this research are that inconsistent findings may have been due to the fact that social changes that occurred may have been too slight to be detected by the measure used. The instrument may not have been appropriate to use four weeks from the original administration. Test–retest reliability of the measure was based on ten weeks (Goldstein & McGinnis, 2008).

Another limitation of this study was that a variable was not incorporated to determine social skills growth that would have occurred due to natural occurring
development. A future recommendation to continued social skills research would be to incorporate a variable that accounts for such changes.

The results of the study were consistent with previous research finding mixed treatment effects. However, significant increases in social skills for one group, and significant decreases in problem behaviors for two of the four groups suggest that further research is needed to determine the efficacy and value of continued implementation of social skills interventions with this population.
REFERENCES


APPENDIX A
March 13, 2009

Lanelle Dowling
1312 Dayton Rd.
Chico, CA 95923

Dear Lanelle Dowling,

As the Chair of the Campus Institutional Review Board, I have determined that following your Full Board review, no further modifications are needed in your research proposal entitled "THE EFFICACY OF SKILLSTREAMING SOCIAL SKILLS PROGRAM WITH ELEMENTARY SCHOOL CHILDREN WITH HIGH FUNCTIONING AUTISM". This clearance allows you to proceed with your study.

I do ask that you notify our office should there be any further modifications to, or complications arising from or within, the study. In addition, should this project continue longer than the authorized date, you will need to apply for an extension from our office. When your data collection is complete, you will need to turn in the attached Post Data Collection Report for final approval. Students should be aware that failure to comply with any HSRC requirements will delay graduation. If you should have any questions regarding this clearance, please do not hesitate to contact me.

Sincerely,

John Mahoney, Ph.D., Chair
Human Subjects in Research Committee

Attachment: Post Data Collection Report

cc: Leesa Huang (234)
APPENDIX B
Paradise Unified School District

Written Consent

Special Services

February 5, 2009

Lanelle Dowling
1312 Dayton Rd.
Chico, Ca

Dear Ms. Dowling,

Thank you for your interest in helping Paradise Unified School District students. The purpose of this letter is to grant you permission to provide additional social skill support services to students in Paradise Unified School District as a part of your Master's thesis.

I understand that you will be evaluating the efficacy of the Skillstreaming program when working with children with High Functioning Autism or Asperger's Disorder. You will also be conducting a social skills group with three students with the classification of Emotional Disturbance that will be used as a control group for your study.

Furthermore, I understand that you will be verifying diagnoses as well as collecting information from teachers and parents/legal guardians and that all information will be kept confidential. You will secure the appropriate paperwork from the parents/legal guardians to have their child participate in your study. I may request the results of your study in the future.

Please feel free to contact me if I can provide you with any additional information that might be helpful.

Sincerely,

Mary H. Ficcardi, M.Ed.
Director of Special Services
APPENDIX C
Parent Consent Form

Dear Parent/Guardian,

This letter serves as an informed consent for the following research study, “The Efficacy of the Social Skills Program Skillstreaming with Children with High Functioning Autism”. As a graduate student working on a Master’s in the School of Psychology from California State University, Chico it is important to examine research as it relates to effective social skills curriculum for children with autism. The purpose of this study is to investigate Skillstreaming, a commonly used social skills program. The research would be beneficial not only to the students receiving social skills support, but I believe that it will add to the literature regarding effective practices for this population.

In this study, I plan to teach social skill lessons, from the Skillstreaming curriculum, to elementary students with a diagnosis of High Functioning Autism, Asperger’s Disorder, or those in need of additional social skills support. Skillstreaming addresses the social skill needs of students who display difficulty with friendship making skills, withdrawal, or other social behaviors. The sessions will incorporate many topics of friendship making skills including introducing oneself, beginning a conversation, ending a conversation, joining in, playing a game, asking a favor, offering to help a classmate, giving a compliment, suggesting an activity, apologizing and sharing. These sessions will be 45 minutes in length, meet twice a week, for four weeks.

Participation in the study will require parents and teachers to fill out the Social Skills Improvement System, a rating scale that takes approximately twenty minutes to fill out, before and after the student’s participation in the program to determine progress. Further, teachers and parents will participate in an interview with the primary researcher that takes ten to twenty minutes to complete. In addition, parents are required to provide documentation of child’s diagnosis before participating in the study as well as grant access to the last psychological report. These measures increase the accuracy of the study and therefore the accuracy of determining social skills growth of the children participating.

Your child’s participation in this study is entirely voluntary. There is no penalty for not participating in this study and participants can withdrawal at any time without penalty or reprisal. As the primary researcher, I will be the only individual who will know the true identities of the participants. The data will be coded providing anonymity to the students who contribute to the study. All information obtained will be kept confidential except as required by state law (i.e., imminent danger to self or others or suspected child abuse/neglect). There are no foreseeable risks to the participation of the students in this study. Benefits to students may include a greater understanding of and
positive use of social skills. The results of the study will be shared with Paradise Unified School District and parents or guardians upon request.

For further information please contact the principal investigator at California State University, Lanelle Dowling (xxx) xxx-xxxx and Thesis Advisor Dr. Leesa Huang (xxx) xxx-xxxx. Thank you in advance for your consideration.

Lanelle Dowling     Leesa Huang, Ph.D., NCSP
Principle Investigator     Thesis Advisor

Informed Consent

1. Lanelle Dowling, CSU Chico School Psychology PPS Graduate Student, the principal researcher has access to documents verifying the diagnosis of my child, such as IEP documents or ADOS scores as understood that this information is kept confidential and she will be the only person who will know the true identity of my child.______(Initial)

2. I agree to filling out the Social Skills Improvement System (SSIS) which takes approximately twenty minutes, twice before and after the Skillstreaming program.______(Initial)

3. I agree to participating in the ten to twenty minute interview with Lanelle Dowling twice before and after she works with my child.______(Initial)

4. I agree and acknowledge that my child’s teacher will also be filling out the SSIS and interview and data will be given to Lanelle Dowling.______(Initial)

5. I agree to and acknowledge my child’s participation in the Social Skills program implemented by Lanelle Dowling. I understand that all information will be kept confidential except as required by state law (i.e. imminent danger to self or others or suspected child abuse/neglect).______ (Initial)

6. Your signature on this page grants permission for your child to participate in the previously described study and permission to receive social skills support by Lanelle Dowling, Graduate School Psychology Student from California State University, Chico.

____________________   ______________________
Parent or Legal Guardian Signature       Date

____________________   ______________________
Parent or Legal Guardian Signature       Date
APPENDIX D
Letter of Teacher’s Consent

Dear Teacher,

This letter serves as an informed consent for the following research study, “The Efficacy of the Social Skills Program Skillstreaming with Children with High Functioning Autism.” As a graduate student working on a Master’s in the School of Psychology from California State University, Chico it is important to examine research as it relates to effective social skills curriculum for children with autism. The purpose of this study is to investigate Skillstreaming, a commonly used social skills program. The research would be beneficial not only to the students receiving social skills support, but I believe that it will add to the literature regarding effective practices for this population.

In this study, I plan to teach social skill lessons, from the Skillstreaming curriculum, to elementary students with a diagnosis of High Functioning Autism, Asperger’s Disorder, or those in need of additional social skills support. Skillstreaming addresses the social skill needs of students who display difficulty with friendship making skills, withdrawal, or other social behaviors. The sessions will incorporate many topics of friendship making skills including introducing oneself, beginning a conversation, ending a conversation, joining in, playing a game, asking a favor, offering to help a classmate, giving a compliment, suggesting an activity, apologizing and sharing. These sessions will be 45 minutes in length, meet once a week, for eight to ten weeks.

Participation in the study will require parents and teachers to fill out the Social Skills Improvement System, a rating scale that takes approximately twenty minutes to fill out, before and after the student’s participation in the program to determine progress. Further, teachers and parents will participate in an interview with the primary researcher that takes ten to twenty minutes to complete. In addition, parents are required to provide documentation of child’s diagnosis before participating in the study. These measures increase the accuracy of the study and therefore the accuracy of determining social skills growth of the children participating.

Your student’s participation in this study is entirely voluntary. There is no penalty for not participating in this study and participants can withdrawal at any time without penalty or reprisal. As the primary researcher, I will be the only individual who will know the true identities of the participants. The data will be coded providing anonymity to the students who contribute to the study. All information obtained will be kept confidential except as required by state law (i.e., imminent danger to self or others or suspected child abuse/neglect). There are no foreseeable risks to the participation of the students in this study. Benefits to students may include a greater understanding of and
positive use of social skills. The results of the study will be shared with Paradise Unified
School District and parents or guardians upon request.

For further information please contact the principal investigator at California State
University, Lanelle Dowling (xxx) xxx-xxxx and Thesis Advisor Dr. Leesa Huang (xxx)
xxx-xxxx. Thank you in advance for your consideration.

Lanelle Dowling     Leesa Huang, Ph.D., NCSP
Principle Investigator     Thesis Advisor

Informed Consent
1. I agree to filling out the Social Skills Improvement System (SSIS) which takes
approximately twenty minutes, twice before and after the Skillstreaming
program. ______ (Initial)
2. I agree to participating in the ten to twenty minute interview with Lanelle Dowling
twice before and after she works with my student. ______ (Initial)
3. I agree to participation in the Social Skills program implemented by Lanelle Dowling.
I understand that all information will be kept confidential except as required by state
law (i.e. imminent danger to self or others or suspected child abuse/neglect)._______
(Initial)

___________________________________________  ___________________________
Teacher Signature                            Date
APPENDIX E
Structured Interview Questions

Parent

Background
1. Date of Birth:_________________
2. Gender:____________________
3. Ethnicity:___________________
4. How old when received Diagnosis:_______________

Reciprocal Social Interactions
1. When you are speaking to your child, how often does he/she make eye contact with you?
2. Does your child have difficulty making or keeping friends? How so?
3. Does your child have trouble understanding nonverbal cues? For example, facial expressions, body posture, and gestures.
4. Does your child spontaneously share experiences with other people? What does he/she like to share about?
5. Could estimate how much time your child prefers to play alone and with other peers?
6. Does your child play cooperatively with others in a one-on-one setting? Please explain.
7. How does your child react when others are trying to play with them?
8. Does your child have difficulty taking turns with others in a group setting?
9. Does your child/student understand others feelings or appears to be in their own world most of the time? Please provide some examples.
10. What is conversation like with your child? For example, do they start conversations with others? Do they tend to focus on topics of interest? Do they take turns in conversations?
APPENDIX F
Structured Interview Questions

Teacher

Background
1. Date of Birth:_____________________
2. Gender:_________________________ 
3. Ethnicity:_______________________
4. How old when received Diagnosis:___________________

Reciprocal Social Interactions
1. When you are speaking to your student, how often does he/she makes eye contact with you?

2. Does your student have difficulty making or sustaining friends? How so?

3. Does your student have difficulty understanding nonverbal cues?

4. Does your student spontaneously share experiences with other people? What does he/she like to share about?

5. Could estimate how much time your student prefers to play alone and with other peers?

6. Does your student engage and initiate cooperative play in a one-on-one setting? Please explain.

7. How does your student react when others are trying to play with them?

8. How does your student do in a group setting? (i.e., difficulty taking turns)

9. Does your child/student understand others feelings or appears to be in their own world most of the time? Please provide some examples.

10. Describe how conversations are with your student, for example do they initiate conversations with others? Do they tend to focus on topics of interest? Do they take turns in conversations?