SOCIAL SKILLS INTERVENTIONS FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS: TEACHERS' ACCEPTABILITY AND LIKELIHOOD TO KEEP AND USE PROGRESS MONITORING DATA

By

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To my mom and step-dad, for their infinite love, and to my dad, who continues to watch over me from above
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Social Skills Interventions for Children with Autism Spectrum Disorders: Teachers' Acceptability and Likelihood to Keep and Use Progress Monitoring Data

By

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August 2012

Chair: John Kranzler
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Autism is the most common of the Pervasive Developmental Disorders; and it is estimated that 1 in 110 children are born with this disorder (Centers for Disease Control, 2009). One of the core features of autism is a profound deficit in social skills. Various behavioral treatments are available to promote students' social skills in the classroom environment. Teachers are often responsible for implementing these interventions, but little is known about teachers' perceptions of and judgments about these interventions. Treatment acceptability gained increasing attention in the 1980s and has since been a topic of interest for much research. However, a dearth of research remains on teachers' acceptability of interventions for students with autism. The purpose of the study was to examine teachers' perceptions of acceptability, effectiveness, and timeliness of effect (assessed using the Behavior Intervention Rating Scale; BIRS), and their likelihood to keep and use progress monitoring data for two positive interventions for students with autism (social stories and self-management) and a reductive intervention (timeout). Two hundred and thirty-eight teachers of grades K-6 participated in the online survey. Each teacher was randomly assigned to an intervention treatment group (i.e., social stories,
self-management, or timeout). The survey consisted of a demographics form, the Teacher Efficacy in Classroom Management and Discipline scale (TECMD), a vignette about a student and the proposed intervention (based on the treatment group), the BIRS, and a question about their likelihood to keep and use progress monitoring data for the proposed intervention. The one-way analysis of variance (ANOVA) model was used to compare treatment means for acceptability, effectiveness, and timeliness of effect. Results indicated that teachers perceived social stories to have the highest acceptability, followed by self-management, and then timeout. Teachers perceived social stories and self-management to have equal effectiveness and timeliness of effect; both were rated higher on these dimensions than timeout. Seven teacher variables (age, years of experience, grade taught, previous use of the intervention, previous professional contact with students who have autism, number of students in classroom, and teacher efficacy in classroom management and discipline) were also of interest for their influence on treatment effects for acceptability ratings. The analysis of covariance (ANCOVA) model was used to test for main effects and two-way interactions of the teacher variables on treatment acceptability. Results indicated that years of experience and previous professional contact with students who have autism had a significant and negative relationship with acceptability scores across all three treatments. A two-way interaction was found between treatment type and previous use of the intervention. Pairwise comparisons indicated that teachers who had previously used social stories had significantly higher ratings of acceptability than teachers in the self-management and timeout groups. To examine teachers’ likelihood to keep and use progress monitoring data for the three interventions, and whether perceptions of acceptability,
effectiveness, or timeliness of effect influenced their likelihood, ordinal regression was used. Results suggested that teachers were more likely to collect and use progress monitoring data for the positive interventions (i.e., social stories and self-management) than for the negative intervention (i.e., timeout). Acceptability was found to mediate the effect of treatment on willingness to keep and use progress monitoring data.
Autism Spectrum Disorders (ASD)

Autism spectrum disorders (ASD, also called Pervasive Developmental Disorders, or PDD) are a cluster of developmental disabilities characterized by pervasive deficits in both socialization and communication skills, as well as by demonstrations of unusual behaviors or interests (Nicholas, Charles, Carpenter, King, Jenner, & Spratt, 2007). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (2000) specifies five separate autism spectrum disorders, which are: autistic disorder (or autism), Aspergers syndrome, Rett syndrome, childhood disintegrative disorder, and pervasive developmental disorder – not otherwise specified.

The DSM-IV-TR (2000) specifies the following criteria for the establishment of an autism diagnosis:

I) A total of six (or more) items from heading (A), (B), and (C), with at least two from (A), and one each from (B) and (C): A)(1) Qualitative impairment in social interaction, as manifested by at least two of the following: (a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction; (b) failure to develop peer relationships appropriate to developmental level; (c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest); (d) lack of social or emotional reciprocity; (2) Qualitative impairments in communication as manifested by at least one of the following: (a) 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); (b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others; (c) stereotyped and repetitive use of language or idiosyncratic language; (d) 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 one of the following: (a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus; (b) apparently inflexible adherence to specific, non-functional routines or
rituals; (c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements); (d) 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: (1) Social interaction; (2) Language as used in social communication; or (3) Symbolic or imaginative play. C) The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder. A total of six (or more) items is required in order to get a diagnosis for Autistic Disorder. (American Psychiatric Association, 299.00)

The Individuals with Disabilities Education Act (IDEA, 2004) identifies autism as one of the specific categories of disabilities under which children may be eligible for special education and related services. IDEA’s (2004) definition of autism is as follows:

Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance. (IDEA, 300.7(1)(i))

The onset of autism usually occurs before the child reaches the age of three, and it often appears in the child’s first year (Bright Futures, 2010). Autism is 4-5 times more prevalent in males than females, although females are more likely to experience a more severe intellectual disability (American Psychiatric Association, 2000). Signs of autism in the young child may include toe-walking, rocking, head banging, preoccupation with certain objects, insistence on rituals and routines, inability to take another’s perspective, delayed or absent speech, echolalia, and limited representational play or use of toys (Bright Futures, 2010).

**High-Functioning Autism**

Autism is often comorbid with mental retardation, which may range from mild to profound (American Psychiatric Association, 2000). However, an important
consideration is that autism falls on a spectrum with a varying range of symptoms. The term high-functioning autism (HFA) is used to refer to a group of individuals on one end of the ASD spectrum who demonstrate average or above average cognitive abilities. These individuals are distinguished from other children with autism by having an intellectual quotient (IQ) of 70 or above (Holwin, 2003). HFA is also characterized by deficits in social interactions and restricted interests, without clinically significant delays in language development (Sansosti, Powell-Smith, & Cowan, 2010). Although children with HFA typically perform well academically in the general education classroom, their demonstrations of inappropriate behavior, obsessive interests, and difficulty with social interactions may hinder their ability to be successful in that setting.

**Prevalence**

Approximately 1 percent of children between the ages of 3-17 have ASD (Kogan, Blumberg, Schieve, Boyle, Perrin, & Ghandour, 2009). In 2009, the Center for Disease Control issued a prevalence report that concluded that the prevalence of autism had risen to 1 in 110 births (Centers for Disease Control, 2009). This translates to approximately 1.5 million individuals living in America today live with some form of autism. Statistics from the U.S. Department of Education and other governmental agencies suggest that autism is growing in prevalence each year, with estimates from 10-16 percent; at this rate, approximately 4 million Americans are predicted to have autism in the next decade (Autism Society, 2009).

**Social Skills**

One of the core features of ASD is a profound deficit in social skills. Regardless of cognitive or language abilities, individuals with ASD have great difficulties with socialization and interactions (Carter, Davis, Klin, & Volkmar, 2005). Social skills have
been defined as socially acceptable behaviors that allow a person to appropriately interact with others and, in turn, avoid socially unacceptable responses from others (Gresham & Elliott, 1990). Commonly identified areas include social pragmatics (e.g., turn taking, listening from another’s perspective), speech prosody (flat tone of voice), a tendency to dwell on certain topics, problems understanding and expressing emotions, and difficulty understanding non-literal language such as jokes and metaphors (White, Keonig, & Scarhill, 2007). In addition, children with autism are less likely to initiate conversations, spend more time by themselves and engage in non-social play, and have lower quality social interactions than their peers (Owens, Granader, Humphrey, & Baron-Cohen, 2008).

Social skills deficits may be a function of delays in communication, language, and social development for children with autism (Buschbacher & Fox, 2003). The normal communication skills a child may use to seek attention may not be possible for a child with autism to demonstrate; therefore, displays of inappropriate behavior (e.g., crying, tantrums, yelling) may be the only way for them to acquire the attention they so desire. Problematic behaviors are often associated with difficulties interpreting and responding to nonverbal communication, turn-taking, displaying and reading emotions, and knowing how to get their point across. Some challenging behaviors may include aggression and self-injury (Cox & Schopler, 1993), property destruction (Campbell, 2003), poor self-control, hyperactivity, inattention, and resistance to change (Sansosti, Powell-Smith, & Cowan, 2010). Difficulties responding to others lead to problematic social interactions and severely disruptive behavior (Koegel, Koegel, Hurley, & Frea, 1992). Fortunately, a great number of social skills programs and interventions have been developed in recent
years to help improve the social abilities of people diagnosed with ASD (Fragioudakis, 2009).

**Behavioral Interventions for Students with ASD**

Many intervention programs have been focused on teaching academic skills that help students be mainstreamed into general education settings (Scattone, 2007). These interventions may be greatly beneficial for reducing the academic gap for students with autism; however, the social gap may likely widen if behavioral interventions are neglected. In the past 15 years, research has started to explore highly sophisticated social skills interventions (Barnhill, Cook, Tebbenkamp, & Myles, 2002; Barry et al., 2003; Sansosti & Powell-Smith, 2006; Web, Miller, Pierce, Strawser, & Jones, 2004). However, until research in this area further evolves, broad projections of the findings regarding the different interventions should not be made. As it exists, the studies often include small sample sizes and varying implementation procedures, making it difficult to generalize these strategies to other children and settings. Despite these limitations, video modeling, priming, written scripts, pivotal response training, social stories, and self-management strategies are all behavior interventions that have demonstrated positive outcomes for students with autism in terms of improving social skills, and in turn, reducing other problematic behaviors. A description of each type now follows.

**Video modeling**

Video modeling requires students to watch videotaped demonstrations of social skills. The expectation is that students will later imitate the behaviors shown in the video (Scattone, 2007). They have been successful in teaching children with autism play (Taylor, Levin, & Jasper, 1999), social initiations (Nikopoulos & Keenan, 2004), and perspective taking (Carlop-Christy & Daneshvar, 2003). For instance, Nikopoulos and
Kennan (2004) examined the effects of a video modeling intervention on social initiation and play behaviors with three children with autism. Each child watched a 35-s videotape showing a typically developing peer, and the experimenter engaged in social interactive play using one toy. All three children demonstrated enhanced social initiation and reciprocal play skills, and the effects were maintained at 1- and 3-month follow-ups.

**Priming**

Priming is a form of antecedent manipulation (Scattone, 2007). Priming occurs prior to the activity, is of low demand, and typically involves skills that the child already knows. It is also highly reinforcing since children are provided access to preferred activities. It often involves exposing the child to an upcoming event and providing practice, making the situation more predictable and easier to manage. For instance, Zanolli, Daggett, and Adams (1996) used priming to promote spontaneous initiations of two preschool children with autism toward their typical peers. Priming sessions were held just before 5-min activity sessions. The priming sessions taught the target children how to initiate interactions with peers, and peers were taught to respond to those initiations and deliver reinforcement. Spontaneous initiations improved for both target children after priming was introduced.

**Written scripts**

Written scripts are useful in allowing children with autism to interact effectively with their peers (Scattone, 2007). Children are provided with written scripts for a socio-dramatic play, allowing the children to assume different roles. For instance, Goldstein and Cisar (1992) used written scripts for activities such as a carnival, pet shop, and magic shop. Children were allowed to take on roles such as the clerk, assistant, and
customer. The child with autism who participated in this study engaged in social interactions that were more involved than that which was written in the script.

**Pivotal response training**

Pivotal response training (PRT) is a method that has gained attention in recent years for teaching complex social behaviors to children with autism (Scattone, 2007). PRT focuses on teaching skills through multiple cues, motivation, self-management, and self-initiations. One example of PRT can be seen in a study conducted by Pierce and Schreibman (1997). The researchers taught eight peer trainers to teach conversational speech and play to two young boys with autism. Peers received manuals with instructions on how to extend conversations, reinforce responding, teaching responsivity, narrating play, and providing choices. The intervention was shown to be highly effective but also very time consuming and difficult to implement.

**Social stories**

Social stories are one type of positive behavior support that are used to teach appropriate social behaviors to children with ASD (Crozier & Sileo, 2000). Social stories are individualized short stories that can help children with ASD understand social situations that may otherwise appear challenging or confusing (Gray, 2003). These stories provide information about what people are doing in specific social situations, their thoughts and feelings, a sequence of events, social cues, and a script for what to do or say (Attwood, 2000). Social stories have received support from both clinicians and school-based support personnel, and studies have demonstrated positive outcomes for decreasing repetitive behaviors, tantrums, disruptive behaviors, and increasing the frequency of social interactions and appropriate play (Sansosti, 2010). Delano and Snell (2006) found that social stories increased the frequency of four different social skills:
seeking attention, initiating requests, initiating comments, and making contingent responses. However, Sansosti et al. (2004) contended that research on the effectiveness of social stories should still be interpreted with caution as many of the studies lack experimental control and have weak treatment effects or confounding variables.

**Self-management**

Despite the abundance of research showing the effectiveness of teacher-managed interventions for struggling students, limitations with these approaches remain. For instance, these strategies do not help the students learn the skills needed to self-regulate their behaviors to promote independent functioning. In addition, some behavior management techniques can be intrusive and require additional instructional time that the teacher may not have (Wilkinson, 2008). The positive behavior support strategy of self-management allows individual students to monitor, record, and reinforce their own behaviors, and tangible reinforcement is often given for a successful demonstration of correct behavior. Wilkinson (2008) described the following steps that should go into a self-management plan: (1) identify the preferred behavioral targets; (2) determine how often students will self-manage their behavior; (3) meet with the student to explain self-management, identify goals, and establish preferred rewards contingent upon achieving those goals; (4) prepare a student self-recording sheet; (5) model the self-management plan, and provide the student an opportunity to practice; (6) implement the plan; (7) determine if goals were attained; (8) provide rewards when earned; (9) incorporate the home by sending the recording sheet for review; and (10) fade the intervention by increasing interval length. Self-management has been well supported for a variety of populations, including children with autism (Scattone, 2007).
**Mild reductive procedures**

Historically, individuals who worked with children with autism largely relied on reductive procedures for behavior management. These procedures ranged from mild (verbal reprimands, time-out, overcorrection) to more intrusive (e.g., water mist, physical restraint, electrical shock; Charlop-Christy & Haymes, 1996). Because of the side effects associated with these procedures (especially the more intrusive ones), more positive approaches are often preferred (Charlop-Christy & Haymes, 1996; Risley, 1968). Additionally, time-out, verbal reprimands, and taking away preferred items do not appear to have the same impact as they do for children without autism (Ruble & Akshoomoff, 2010).

The use of timeout in school settings has been a source of rising controversy, and is often understood as an intervention resulting in the student’s being moved from one location to another, often for the purposes of calming a student, removing the student from a larger group, or encouraging the child to problem solve (Ryan, Peterson, & Rozalski, 2007). Ryan and his colleagues defined four types of timeout: inclusion, exclusion, seclusion, and restraint. Inclusion timeout is the least restrictive, and the child is placed in another part of the classroom where they can continue to observe classroom activities. Exclusion timeout does not allow the child to observe classroom activities, but they are not physically prevented from leaving. Examples include facing the wall, sitting at the desk with the head down, or placed behind a partition in the classroom, the school office, or another classroom. Seclusion timeout involves removing the student from the classroom and usually prevented from leaving. Examples include a timeout room or a seclusion room. It is considered to be one of the most restrictive forms of timeout. The effectiveness of seclusion has rarely been studied and
with mixed results (Ryan et al., 2007). Restrained timeout involves movement suppression or therapeutic holding (Ryan & Peterson, 2004), and timeout procedures are followed while the child is kept under physical restraint. It is one of the least common forms of timeout used in schools (Ryan et al., 2007).

Timeout procedures are frequently overused by teachers. In some cases, teachers repeatedly send a student to timeout despite this procedure’s ineffectiveness in changing the student’s behavior (Ryan et al., 2007). Another concern is that students may inadvertently be reinforced by being removed from a classroom setting which they find aversive. In the case of students with autism, being removed from social settings may actually be reinforcing because they are removed from environmental social demands, making the timeout procedure of little use (Masse, 2010).

The interventions described above are possible to implement in a variety of contexts, including schools and classrooms. Teachers are often responsible for implementing behavior interventions. However, unless teachers believe that the intervention addresses an important problem in an acceptable fashion, they are unlikely to use the intervention (Kazdin, 1980). Therefore, an important consideration of any intervention is the issue of treatment acceptability (Fragioudakis, 2009).

Treatment Acceptability

Definition

Social validity refers to the idea that interventions may be judged for social importance on three levels (Wolf, 1978). First, the outcomes of the intervention must be both regarded as relevant and important. Second, the procedures of the intervention must be considered acceptable by society. Third, the intervention effects should have clinical significance. Kazdin (1980) stated that the predominant focus of social validity
research has centered on the appropriateness of treatment procedures, an area known as treatment acceptability. Kazdin (1981) was one of the first to define treatment acceptability, calling it “judgments by laypersons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client” (p. 493).

**Importance of Topic**

According to Elliott, Witt, Galvin, and Peterson (1984), psychologists may encounter substantial resistance when suggesting a behavioral intervention to a teacher for use on a child. This is understandable considering the barriers facing teachers, including limited time and resources, lack of personnel, and lack of behavior management skills. Unless teachers believe that the intervention addresses an important problem with acceptable procedure, they may be unlikely to use the intervention (Kazdin, 1980). Kern and Manz (2004) described that even programs demonstrating high levels of empirical support may be “destined for failure—particularly by way of rejection—if one or another dimension of the program is not acceptable to customers” (p. 54). Therefore, in order to promote the implementation of intervention by teachers for students in their classroom with the uppermost fidelity, it is essential that researchers explore the various factors that may influence their judgments regarding the acceptability of the treatment.

**Models of Treatment Acceptability**

Witt and Elliott’s (1985) posited the first model of treatment acceptability (Finn & Sladeczek, 2001). In their model, interrelations exist among four elements: treatment acceptability, treatment use, treatment integrity, and treatment effectiveness. The components are hypothesized to be related to the other components through a model of
sequential and reciprocal links. According to the model, treatment selection is influenced by initial judgments about acceptability. Acceptability impacts the use of a treatment, which affects the extent to which procedures are implemented (fidelity), which ultimately influences the overall effectiveness of the treatment. Lastly, if the treatment is deemed effective, judgments about treatment acceptability will be enhanced. According to the model, these links are also reciprocal. For instance, use of treatment is hypothesized to influence and be influenced by acceptability and integrity. For an illustration of this model, please refer to Figure 1-1.

Reimers, Wacker, and Koeppl (1987) expanded Witt and Elliott’s (1985) model to include treatment knowledge as a component in the decision-making flowchart. The model hypothesizes that if poor understanding of a treatment is remedied by education (resulting in good understanding), than high acceptability might follow. Their model is more complex, and the links between components are sequential, but not reciprocal. For instance, if the treatment is perceived with poor understanding, there will be low acceptability, followed by low compliance, resulting in limited treatment effectiveness. However, if the treatment is perceived with high understanding, high acceptability may follow, resulting with higher compliance. An illustration of the model proposed by Reimers, Wacker, and Koeppl (1987) can be found in Figure 1-2. Elliott (1988) stated that both proposed models are limited in that neither can fully characterize the complex range of variables and their interactions, as well as their influence on the selection and implementation of behavioral treatments. Although the validity of both models is largely untested, both provide a useful heuristic for guiding treatment acceptability research (Finn & Sladeczek, 2001).
Methods of Investigation

In their review of treatment acceptability measures, Finn and Sladeczek (2001) noted that much of the treatment acceptability research involves quasi-experimental studies using an analogue methodology with large sample sizes. The utilization of vignettes describing student cases and hypothesized intervention plans is a standard practice within the acceptability research (Lackey, 2006). Treatment acceptability is commonly assessed through a questionnaire format in which respondents rate statements regarding the fairness and expected effectiveness of interventions (Finn & Sladeczek, 2001).

The first measure of treatment acceptability published in the literature is the Treatment Evaluation Inventory (TEI; Kazdin, 1980). Revisions of this instrument have included the TEI-Short Form (TEI-SF; Kelley, Heffer, Gresham, & Elliott, 1989), Treatment Acceptability Rating Form (TARF; Reimers & Wacker, 1988), and the Treatment Acceptability Rating Form-Revised (TARF-R; Reimers et al., 1992). The TEI has been used extensively with different populations, including graduate students, parents, hospital staff, and school personnel (Finn & Sladeczek, 2001). The TARF was an effort to refine Kazdin’s original TEI measure for treatment acceptability, and scores are provided for five domains including acceptability, disruption, time, effectiveness, and willingness. However, little information has been provided regarding the scoring procedures and psychometric properties of this scale (Finn & Sladeczek, 2001). The TARF-R is a substantial improvement of the TARF for both practical and psychometric reasons; however, it is limited in that it has been primarily used with parents of children displaying behavioral problems.
In addition to the TEI, the Intervention Rating Profile (IRP; Witt & Martens, 1983) is the other most commonly used treatment acceptability measure. The IRP measures acceptability of school-based interventions, and it was one of the first to do so (Finn & Salderczek, 2001). Revisions of the IRP-20 include the IRP-15, the CIRP, and the BIRS. The IRP-15 (Martens, Witt, Elliott, & Darveaux, 1985) is a shortened version of the IRP-20. The Children’s Intervention Rating Scale (CIRP; Witt & Elliott, 1985) is one of the few acceptability measures that can be used by children (Finn & Salderczek, 2001). One shortcoming of this scale is that it is written on a fifth grade reading level, limiting its use to older children. The Behavior Intervention Rating Scale (BIRS; Von Brock & Elliott, 1987) was derived from an extension of the IRP-15, and yields three factors: acceptability, effectiveness, and time to effectiveness. The authors provided little information regarding how the new items were created, except that they were created from the treatment effectiveness literature (Elliott & Treuting, 1991).

Elliott (1985) noted that in addition to the development of meaningful acceptability measures, researchers interested in treatment acceptability have also been interested in (a) cataloging the relative acceptability of a wide range of treatments, and (b) understanding the lawful impact of an array of variables (e.g., problem severity, type of intervention) on consumers’ perceptions of the treatment. This review involves examining the research on treatment acceptability with regards to three types of variable manipulation: client/case variables, treatment variables, and rater/teacher background variables. Because the research often overlaps with multiple variable manipulations, studies may be mentioned more than once so that multiple findings can
be presented. An overview of the past 30 years of research on these variables now follows.

**Variables that Influence Teachers’ Treatment Acceptability**

**Client/Case Variables**

A number of client/case variables have been addressed in the literature concerning their influence on treatment acceptability perceptions. Among these variables include the use of the client’s diagnostic label, the severity of the case, the age of the client, and the client’s gender. These variables are further described below.

**Use of a diagnostic label**

Labeling effects on treatment acceptability have received little attention but are important for study (Stinnett, Crawford, Gillespie, Cruce, & Langford, 2001). Current thinking is that less invasive interventions should be carried out first before more invasive ones are implemented. Labels may bias treatment acceptability, subjecting individuals with a diagnostic label to more invasive treatments (Stinnett et al., 2001). Although the research is limited, results suggest that the use of a diagnostic label has little impact. For instance, Fairbanks and Stinnett (1997) presented teachers, school psychologists, and social workers with a vignette about a 3rd grade student with externalizing behavior problems, including excessive talking, out of seat, and overly active. The use of a label for learning disabled (LD), behavior disorder (BD), and attention deficit disorder (ADD) varied across groups. After reading about the student and a proposed intervention (either a positive or negative intervention), participants were instructed to complete the IRP-15 (Martens et al., 1985). No significant effects of diagnostic label on teachers’ treatment acceptability were observed. These results are consistent with the work of Stinnett et al. (2001). In that study, pre-service teachers read
one of four vignettes; the content of the vignette was held constant, but use of label (attention-deficit/hyperactivity disorder vs. no label) and treatments (special education vs. Ritalin) varied. After reading the vignette, participants completed the IRP-15 (Martens et al., 1985). Results indicated that the use of the attention-deficit/hyperactivity disorder (ADHD) label versus no label was not found to make a significant difference between the acceptability of two treatments.

**Severity of client’s problem**

The severity of the problem behavior may be another important consideration for treatment acceptability. Findings are mixed, but some research leads to suggest that treatment acceptability is a function of the severity of the problem. Kazdin (1980), for example, asked undergraduate students to read about a child with either moderate or severe behavior problems. Participants then rated four different treatments (i.e., reinforcement of incompatible behavior, timeout from reinforcement, drug therapy, and electric shock) that were presented in consecutively in prearranged sequences. The measures used were the TEI (Kazdin, 1980) and the Semantic Differential (Osgood, Suci, & Tannenbaum, 1957). Results indicated that treatments were differentiated in overall acceptability, with reinforcement of incompatible behavior being the most acceptable, followed by timeout from reinforcement, drug therapy, and electric shock. Additionally, case severity influenced the acceptability of alternative treatments, with all treatments being rated as more acceptable with more severe cases.

Elliott, Witt, Galvin, and Peterson’s (1984) also examined the importance of behavior severity in their two-experiment study. In Experiment 1, intervention complexity (i.e., low, medium, high) and behavior problem severity (i.e., mild, moderate, severe) were manipulated. The interventions used positive reinforcement strategies. Each
participant read one of the nine case studies, and then completed the IRP (Witt & Martens, 1983). Findings indicated that teachers rated the least complex intervention as the most acceptable for the least severe problem; the most complex intervention was rated with the highest acceptability for the most severe problem. Experiment 2 involved the manipulation of the same independent variables, except negative interventions were used. Again, teachers’ acceptability ratings were found to vary as a function of the severity of the target behavior.

Despite the findings cited above, some research suggests that the severity case is not always influential on treatment acceptability. For instance, Elliott and Fuqua (2002) investigated the acceptability of four treatments for trichotillomania (TTM, chronic hair pulling). The treatments were habit reversal, hypnosis, medication, and punishment. Undergraduate students read case vignettes in which the age of the child and the case severity were manipulated. Hypnosis and habit reversal were rated as the most acceptable, but the severity of a case and age did not have a significant influence on the acceptability ratings of college students. Kutsick, Gutkin, and Witt (1991) presented teachers with a case study in which the following variables were manipulated: (a) severity of problem (mild vs. severe), (b) type of treatment being recommended (reinforcement of incompatible behaviors vs. response cost), and (c) person who developed treatment (teacher alone, psychologist alone, or teacher and psychologist collaboratively). The child’s problem severity was described as either 20 minutes or 90 minutes of instructional time per day that were lost due to a child’s disruptive behavior. Teachers rated the intervention that was developed through collaboration as most acceptable, and the positive intervention was rated with higher acceptability than the
reductive intervention. However, the severity of the case was not found to have a significant influence on the teachers’ treatment acceptability ratings.

**Age of client**

Few studies have examined the relationship between the age of the student and treatment acceptability, and the findings are mixed. Stinson (2009) presented teachers with a case vignette that described an elementary school-aged boy with attention and behavioral problems. The variables manipulated included the age of the child (5 years or 11 years old), the proposed treatment (work completion intervention, stimulant medication, or combination), and the use of a label (ADHD or no ADHD). Teachers rated their acceptability of the treatment using the IRP-15 (Martens et al., 1985). Results indicated that for the 11-year-old condition, medication received higher ratings of treatment acceptability than work completion when the child was labeled. Also, ratings of acceptability for medication were higher for the label condition than for the no label condition when the child was 11 years old. For the 6-year-old child with an ADHD label, teachers gave higher ratings for the work completion intervention than medication. Elliott and Fuqua’s (2002) study was mentioned previously for their findings on case severity of chronic hair pulling on treatment acceptability, but they were also interested in how the age of the client (i.e., children or adults) influenced acceptability. Age was not found to be a significant variable. The findings regarding age of the client remain limited and mixed in treatment acceptability research.

**Gender of client**

Gender is a characteristic that may be worthy of consideration, partially because many persons believe that female students receive differential treatment in classroom settings (Jones & Wheatly, 1988; Shepardson & Pizzini, 1992). Despite its potential
importance, gender has not been well addressed in treatment acceptability literature. Pisecco, Huzinec, and Curtis (2001) studied the effect of sex and symptom subtype classification for ADHD. Elementary teachers were asked to read a vignette about a child who displayed symptoms characteristic of ADHD. However, the vignettes varied by type of symptoms (predominantly inattentive type, hyperactive-impulsive type, or combined type) and gender (Jane or Jonathan). After reading about the child, teachers read a description about a daily report card (DRC), response cost strategy, classroom lottery, and medication. Teachers rated their perceptions of acceptability, effectiveness, and timeliness of effect for each intervention using the BIRS (Von Brock & Elliott, 1987). The DRC was the most preferred treatment, and gender had an effect on teachers’ beliefs about the acceptability, effectiveness, and timeliness of certain treatment options. Specifically, teachers found medication less acceptable for girls than boys if an alternative behavioral treatment was available. In another study, Spreat and Walsh (1994) surveyed members of the American Association on Mental Retardation (AAMR) about behavior medication programs. Variables manipulated included the gender, age, behavior descriptors, level of mental retardation, restrictiveness of residence, severity of self-injury, and behavior frequency. A modified version of the TEI (Kazdin, 1980) was used. None of the client variables were statistically significant for influencing treatment acceptability ratings.

**Treatment Variables**

Treatment manipulation studies have received a great deal of attention in the treatment acceptability literature and have consisted of manipulating variables such as reinforcement versus punitive/reductive strategies, time required, and information about
treatment efficacy. All of these have been found to influence acceptability ratings. These variables are further described below.

**Positive vs. reductive interventions**

Research has generally characterized treatments as either positive (e.g., praise, token economy, differential reinforcement of other behavior) or reductive (e.g., response cost, timeout) (Elliott, 1985). Although it was not necessarily the primary focus of the research, four of the studies (Elliott et al., 1984; Fairbanks & Stinnett, 1997; Kutsick et al., 1991; Witt & Robbins, 1985) also examined differences in teachers’ perceptions of positive and reductive interventions. For instance, Witt and Robbins (1985) evaluated teachers’ perceptions of six interventions. Two interventions utilized positive reinforcement - differential reinforcement of other behaviors (DRO) and differential reinforcement of low rates of responding (DRL). Four interventions employed reductive techniques - reprimands, seclusion timeout, staying after school, and corporal punishment. DRO (positive) was rated as highly acceptable, and corporal punishment (punishment) was rated as highly unacceptable. DRL, reprimands, timeout, and staying after school were rated from mildly acceptable to mildly unacceptable, respectively. Elliott et al. (1984) found that teachers perceived praise, home-based reinforcement, and a token economy with higher acceptability than ignoring, response-cost lottery, and seclusion timeout. Kutsick et al. (1991) found that teachers rated reinforcement of incompatible behaviors with higher acceptability than use of a response-cost system for a child who was demonstrating inappropriate classroom behaviors. Fairbanks and Stinnett (1997) examined the differences in treatment acceptability for positive (verbal praise and token economy) and reductive (timeout from reinforcement) interventions among different school workers. Perhaps surprisingly, teachers rated the positive
program only slightly higher than the negative program, and teachers had the highest ratings for the negative program of the three professional groups.

**Time required**

Due to the many demands teachers face, time is often a valuable resource. Therefore, it is not surprising that research has consistently indicated time as an important factor for teachers when evaluating a behavior intervention before they use it (Elliott et al., 1984; Witt, Elliott, & Martens, 1984; Witt & Martens, 1983; Witt, Martens, & Elliott, 1984). For instance, Witt et al. (1984) asked teachers to read about a child with a behavior problem and an intervention that applied to the problem, but they manipulated the following variables across groups: teacher time involvement, intervention type, and behavior problem severity. The time variable was presented as low (less than 30 min per day), moderate (1-2 hr to prepare and 30-60 min to maintain), and high (more than 2 hr to prepare and approximately 1 hr per day to maintain). Findings indicated that teachers preferred treatments that required less time; however, as the behavior problem increased in severity, teachers’ acceptability of treatments that required more time increased. Time appears to be an important consideration for teachers; however, it does not appear the ultimate determinant of whether a teacher views a treatment as acceptable or not.

**Treatment efficacy information**

Researchers have been interested in how treatment efficacy information influences treatment acceptability ratings. Researchers have studied this in two ways: (a) by asking participants to rate treatments when provided with information about the strength of treatment, and (b) by asking participants to rate treatments with the presence or absence of treatment effectiveness information (Watson, 2006). As an
example of the former, Kazdin (1981) conducted a two-experiment study to examine the influence of treatment efficacy and adverse side effects. Undergraduate students listed to a cassette tape describing case of a child with deviant behavior and four treatments (reinforcement of incompatible behavior, positive practice, timeout from reinforcement, and medication). Participants completed the TEI (Kazdin, 1980) and Semantic Differential (Osgood, Suci, & Tannenbaum, 1957) after hearing about each treatment. In Experiment 1, effects of treatment efficacy (strong or weak therapeutic effects) were under study; in Experiment 2, the influence of adverse side effects (strong or weak side effects) associated with the treatment were under study. In both experiments, reinforcement was rated as more acceptable, followed by positive practice, timeout, and medication. In Experiment 1, information on effectiveness did not influence acceptability ratings. In Experiment 2, the presence of undesirable effects did influence acceptability ratings in that stronger adverse effects resulted in lower acceptability ratings of all treatments. Kazdin’s (1980) methodology has been criticized though on whether his treatment strength variable had an adequate range, however (Carter, 2007). Also, his sample was comprised of college students who generally are not involved in treatment decisions.

In addition to the strength of treatment, the influence of effectiveness information has also been manipulated by asking participants to rate treatments with the presence or absence of treatment effectiveness information. Von Brock and Elliott (1987) found that effectiveness information influenced treatment acceptability when the behavior problem was mild. Teachers read about one of three treatments (token economy, response cost, or timeout) for supporting a mild or severe classroom behavior issue.
Efficacy information presented was manipulated; teachers received either no effectiveness information, teacher-satisfaction effectiveness information, or research-based effectiveness information. Teachers were asked to complete the BIRS (Von Brock & Elliott, 1987), where they indicated their perceptions regarding acceptability, effectiveness, and timeliness of effect. When the behavior problem was mild, research-based effectiveness information influenced teachers’ perceptions of effectiveness and acceptability ratings more than if no information was provided. Otherwise, effectiveness information did not influence teachers' perceptions about the treatments.

**Rater/Teacher Background Variables**

In addition to client/case and treatment variables, a third line of research in the area of treatment acceptability is concerned with rater/teacher variables. Such variables include gender, attribution beliefs, knowledge, years of experience, grade taught, age, class size, previous contact, previous use, and teacher efficacy. An overview of research in each of these areas now follows.

**Gender of rater**

Gender appears to be an important variable for treatment acceptability. For instance, Kazdin’s (1980) study was described earlier as it relates to problem severity. A supplementary analysis found that male raters had higher acceptability ratings for electric shock and lower acceptability ratings for reinforcement than females. In another study, Miller and Kelly (1992) assessed parents’ acceptability of six interventions (i.e., positive reinforcement, response cost, room timeout, chair timeout, spanking, and medication) for a child demonstrating noncompliance and aggression. They found that mothers gave higher acceptability ratings than fathers for all interventions except
spanking and medication. These findings suggest that males may find punitive strategies more acceptable for behavior problems than do females.

**Attribution beliefs of rater**

How a teacher explains a student's behavior has gained recent attention in acceptability research. If a teachers' willingness to implement an intervention is impacted by the attributions of the student’s behavior, then important considerations may need to be made for the child’s treatment. Stinson’s (2009) dissertation work (described above for her findings on client age) examined teachers’ attributions about children with ADHD. Of specific interest was how teachers’ attributions of a child's behavior predict treatment acceptability. In order to measure attributions, Stinson designed a three-item scale to reflect three dimensions of causal attributions: locus, stability, and controllability. Findings indicated that participants attributed the child’s behavior to internal and stable causes, regardless of the age or label status depicted in the vignette. Additionally, causal attributions significantly predicted treatment acceptability of interventions including work completion, stimulant medication, and combined treatments. Specifically, beliefs that the condition was unstable predicted higher ratings of acceptability for work completion. Beliefs that the condition was due to internal causes predicted higher ratings of medication and combined treatments.

**Rater's knowledge**

Knowledge is yet another background variable that has interested researchers, including knowledge about the behavior treatment and knowledge about the behavior disorder. For instance, Singh and Katz (1985) asked undergraduate students to rate their acceptability of four treatments (differential reinforcement of incompatible behavior, positive practice over correction, timeout, and humanistic parenting) using the TEI
The acceptability ratings were in the following order (highest to lowest): differential reinforcement of incompatible behavior, humanistic parenting, positive practice, and timeout. After the students rated the treatments, they participated in formal educational training on all of the treatments except humanistic parenting. During the training, participants received information about the treatment including empirical data regarding effectiveness and potential side effects. Upon the conclusion of training, participants reevaluated the three treatments they received training on. Their post-treatment rankings were the following (from highest to lowest acceptability): differential reinforcement of incompatible behavior, positive practice, and timeout. Humanistic parenting received lower acceptability ratings at post-treatment than at pre-treatment. Results suggest that perhaps a rater’s knowledge about a behavioral treatment may impact their acceptability of the treatment.

Vereb and DiPerna (2004) were interested in not only examining teachers’ knowledge about treatments, but also teachers’ knowledge about ADHD. Elementary teachers completed the Knowledge of ADHD Rating Evaluation (KARE), an instrument designed by the researchers. The KARE included questions pertaining to teachers’ knowledge of ADHD, knowledge of treatments commonly used for ADHD, medication acceptability, and behavior management acceptability. Participants also completed a professional experience questionnaire which contained questions regarding certification, previous training in the area of ADHD, years of teaching experience, and years of teaching students with ADHD. Results indicated that teachers’ knowledge of ADHD, years of experience teaching students with ADHD, and previous training were positively related with medication acceptability. Additionally, previous training in ADHD was
positively correlated with knowledge of ADHD and acceptability of behavior management strategies. Interestingly, a relationship between knowledge of treatments and treatment acceptability was not demonstrated.

**Years of experience**

Years of teaching experience is a variable that has demonstrated a negative relationship with acceptability of treatments (Witt & Robbins, 1985; Witt Moe, Gutkin, & Andrews, 1985); that is, teachers with less experience have demonstrated higher acceptability of treatments. For instance, Witt and Robbins (1985) asked teachers to rate their acceptability of classroom interventions using the IRP (Witt & Martens, 1983) after reading about a 5th grade boy with behavior problems. The case description varied in severity of his behaviors (i.e., mild, moderate, severe). In Experiment 1, teachers were presented with a description of one of six interventions: corporal punishment, differential reinforcement of low rates of responding (DRL), reprimands, timeout, staying after school, and differential response of other behaviors. They found that the differential response of other behaviors technique was rated with the highest acceptability, and corporal punishment was rated with the lowest acceptability. DRL, reprimands, timeout, and staying after school ranged from mildly acceptable to mildly unacceptable. In Experiment 2, teachers read about the same student, but the intervention was staying in from recess. In one condition, the teacher was described as the interventionist. In the other condition, the principal was described as the interventionist and the student had to go to his office for recess. Results indicated that the teacher-implemented intervention was rated with the highest acceptability. Additionally, in both experiments, treatments were rated as less acceptable by more experienced teachers than those newer to the profession.
Years of experience have also shown to be positively related to treatment acceptability; however, the treatment employed reductive techniques (Girio & Owens, 2009). The researchers asked teachers to read a vignette describing a boy with symptoms typical of combined type ADHD. Teachers then used the IRP-10 (Powers et al., 1995) to rate the acceptability of three “promising” treatments (peer tutoring, self-reinforcement, and social skills) and three evidence-based treatments, two of which were psychosocial (daily report card and timeout) and one of which was pharmacological (stimulant medication). The daily report card received the highest mean acceptability rating. Additionally, years of experience demonstrated a relationship with acceptability in that more experienced teachers rated timeout as more acceptable than peer tutoring.

Grade taught and rater’s age

Although both are commonly reported demographic variables in the acceptability research, the predictive ability of grade taught and rater’s age on treatment acceptability has received little attention. In addition to years of experience (cited earlier), Girio and Owens (2009) examined the influence of grade level taught (Pre-K through 6th) and teachers’ age on acceptability of treatments for ADHD. However, findings suggested that grade taught and age were not significantly related to treatment acceptability. However, because these are results from only one study, more research is needed on these variables before definitive conclusions can be made.

Class size

Controversy surrounds the issue of class size, as many tout that smaller classes are associated with higher academic achievement, greater student-teacher interactions, more innovative teaching strategies, and decreased discipline problems (Januszka &
Dixon-Krauss, 2008). Preliminary research suggests that class size may also have implications for treatment acceptability. Lackey (2006) asked special and general education teachers to read a case vignette about a child who exhibited behavior difficulties and a corresponding behavior treatment (precision requests). Participants then completed the IRP (Witt, Martens, & Elliott, 1984). Findings indicated that class size was a significant predictor of lower treatment acceptability ratings for a behavioral intervention. Lackey speculated that perhaps a teacher with many students may not have as much time to intervene with classroom problems.

**Previous professional contact**

The findings are mixed regarding the influence of exposure to a particular type of behavior or mental illness on teachers’ treatment acceptability (Girio & Owens, 2009; Vereb & DiPerna, 2004). Exposure, or contact, should not be equated with years of experience, as a teacher may have much experience, but no or limited contact with a particular type of student. Studies have repeatedly demonstrated that contact with mental illness plays an important role in changing peoples’ attitudes and perceptions of the illness. For instance, Alexander and Link (2003) found that as peoples’ contact with mental illness increased, the perceived dangerousness and desired social distance decreased. Contact has also been shown to decrease negative emotions (Arikan & Uysal, 1999) and social restriction (Vezzoli et al., 2001), and to increase positive affect (Vezzoli et al., 2001). Vereb and DiPerna’s (2004) study found that years of teaching experience with students with ADHD was significantly related to teachers’ acceptance of medication. However, Girio and Owens (2009) asked teacher participants how many students with ADHD they had taught over their career, but found that previous contact was not significantly related to treatment acceptability of various behavior strategies.
(i.e., daily report card, self-reinforcement, social skills, medication, peer tutoring, and timeout) for a student with ADHD. More research on the influence of previous contact on treatment acceptability is needed, however, to further explore this relationship.

**Previous use**

Another potentially important variable is a teacher’s previous experience with a particular intervention, under the presumption that previous use may increase familiarity, and in turn, increase willingness/unwillingness to use the intervention again. There is little research exploring this question, and the available research is inconsistent (Watson, 2006). In one study, Sterling-Turner and Watson (2002) examined this issue by asking undergraduate students to first read a case description and intervention plan (involving reinforcement, punishment, and collecting data) for a client (confederate) demonstrating a facial tic. Participants rated the acceptability of the plan using the IRP-15 (Witt & Elliott, 1985). Participants were then trained to implement the intervention and conducted a treatment session with the client. After the treatment session, participants completed the IRP-15 again. Findings indicated that participants found the intervention more acceptable after using it than before. A study conducted by Noell et al. (2005), however, contradicted these findings. Participants included teachers who had referred students to a school-based team that provided consultative psychological services and intervention planning for students who were experiencing academic or behavioral difficulties at school. Teachers rated the acceptability of interventions that were developed through a consultative process that addressed the students’ problems. Teachers completed the IRP-15 (Witt & Elliott, 1985) both pre- and post-intervention implementation. Findings indicated that acceptability ratings did not change as a result of the treatment. Possible reasons for the contradictory findings of the two studies
described above include a difference in types of raters (undergraduate students vs. teachers) or the type of intervention being implemented.

**Teacher efficacy**

Teacher efficacy is another variable that may have implications for the acceptability of behavior management strategies. Developed by Bandura (1986), self-efficacy is defined as “a judgment of one’s capability to accomplish a certain level of performance” (p. 391). Self-efficacy beliefs may have important implications for teachers’ thinking, decision-making, and behavior, and these beliefs may explain differences in teacher effort, choice of instructional goals, and the utilization of particular discipline strategies (Emmer & Hickman, 1991). For instance, Ashton and Webb (1986) found that teachers with low efficacy were more likely to be controlling and use punitive strategies, while teachers with higher efficacy were more likely to be friendly, relaxed, and trusting of their students. Woolfolk, Rosoff, and Hoy (1990) also examined the relationship between teacher efficacy and classroom management and found a relationship between general teaching efficacy (i.e., belief that teaching can be successful even with successful and unmotivated students) and humanistic beliefs about pupil control and support for student autonomy.

Despite the potential implications teacher efficacy may have on treatment acceptability, little research was found examining the relationship between these variables. Lackey (2006) examined the role of teacher efficacy on teachers’ acceptability of a behavioral intervention (precision requests) for a student with behavior concerns. In addition to reading a vignette about a student and a specific behavioral intervention (precision requests) and completing the IRP (Witt & Martens, 1983), teachers also completed the Teacher Efficacy Scale (TES, Gibson & Dembo, 1984).
Results suggested that self-efficacy scores significantly predicted the acceptability of the intervention.

Girio and Owens’ (2009) also examined the relationship between teacher self-efficacy and treatment acceptability of three evidence-based and three promising treatments for children with ADHD. In addition to the IRP-10 and demographics questionnaire, participants also completed the Ohio State Teacher Efficacy Scale (Tschannen-Moran & Hoy, 2001). This measure yields three subscales: efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. Results indicated that teacher self-efficacy was not related to treatment acceptability.

Due to the mixed findings and limited number of studies, the role of teacher efficacy on acceptability of treatments for struggling students remains unclear. Additionally, the relationship between teacher efficacy in classroom management and discipline and treatment acceptability has never been investigated; rather, a much broader measure of teacher efficacy has been utilized in prior studies.

Summary

Previous research has attempted to account for and explain numerous variables that may influence raters’ acceptability of a particular treatment. Such variables include those related to the client/case, the treatment, or the rater’s background. Additionally, treatment acceptability research has evaluated various types of interventions for a range of behavior problems (Miltenberger, 1990). These problems have included self-injury (Pickering & Morgan, 1985), chronic hair pulling (Elliott & Fuqua, 2002), daydreaming, use of obscene language, destruction of others’ property (Elliott et al., 1984), talking excessively, out of seat, over activity (Fairbanks & Stinnett, 1997), telling
stories, making noises, and drawing cartoons during work time and instruction (Kutsick, Witt, & Gutkin, 1991). More recent attempts have been made to examine acceptability of treatments for behaviors that are associated with specific mental diagnoses such as ADHD (Piescco, Huzinec, & Curtis, 2001; Power, Hess, & Bennett, 1995; Vereb & DiPerna, 2004). Autism has also received some attention from researchers interested in treatment acceptability (e.g., Brubaker, Bundy, Winslow, & Belcher, 2010; Fragioudakis, 2009; Frederick, 2002). Because autism is the topic of interest for this study, a more in-depth review of the treatment acceptability research in this area now follows.

**Treatment Acceptability and Autism**

Treatment acceptability in the field of autism is receiving increased attention, but a dearth of literature still remains. For ease of discussion, the available research will be classified into two categories. First are the studies that are primarily concerned with the effectiveness of implementation. In these studies, treatment acceptability is often of secondary interest. For instance, a few studies concerned with the effectiveness of interventions/programs for children with autism gave an acceptability measure after the intervention had been implemented (King & Valdivinos, 2009; Kodak, Miltenberger, & Romaniuk; Sansosti & Powell-Smith, 2008; Scattone, Wilczynski, Edwards, & Rabian, 2002; Wilkinson, 2005). The researchers reported on the raters’ acceptability of the intervention, but this was not the primary focus of the study. The second type, and perhaps of greater interest for purposes of this research, are those studies that specifically focused on examining and comparing the acceptability of multiple treatments for children with autism, using analog methodology with large sample sizes. Because the literature base is small in the area of autism and treatment acceptability, a review of both types of research is provided.
Acceptability as a Secondary Outcome

Scattone et al. (2002) examined the effectiveness of social stories that targeted the disruptive behavior of three children with autism. The clients were male and between the ages of 7 to 15. The behavior problems of the three children were the following: tipping a chair backward or sideways, staring inappropriately at females, and shouting during math instruction. The stories consisted of a written script, including the responses participants were expected to make. The social stories were designed according to the guidelines suggested by Gray (1998). During the intervention phase, the teacher or the teacher’s aide first introduced the story to each participant. Thereafter, the participant would either read independently or be read to by the teacher. The stories were accessible to the students throughout the day. Data were collected through observations, and disruptive behavior was graphed as a percentage of intervals per session for each participant. Results indicated that all three children demonstrated a reduction in disruptive behavior. Specifically, the child who tipped his chair decreased his behavior from a mean of 50% to a mean of 4.6% of the intervals. The child who stared improved a mean staring of 66.9% of the intervals to only a mean of 18.3% of the intervals. Lastly, the child who shouted decreased his behavior from a mean of 18.2% of the intervals to a mean of 5.1%.

Although the primary purpose of the study conducted by Scattone et al. (2002) was to examine the effectiveness in reducing disruptive behaviors of children with autism, teachers’ perceptions of acceptability of this intervention were also examined. Participants completed the IRP-15 (Martens et al., 1985) during the final phase of the study. All scores were within the acceptable range (52.50 or above).
Sansosti and Powell-Smith (2008) investigated the effects of computer-presented social stories and video modeling on the social communication skills of three boys with high-functioning autism/Asperger’s syndrome (HFA/AS). The researchers used a multiple-baseline across-participants design, and observations of the participants’ identified target behaviors (e.g., greeting behaviors, joining in, sharing) were conducted during unstructured school activities (e.g., recess). During the intervention phase, each participant viewed his video-modeled social story prior to the targeted social setting. Results indicated that the intervention was effective for improving the social communication rates of the participants. Also, all three participants demonstrated maintenance of skills at a 2-week follow-up. Acceptability was assessed after the final phase of the study. Teachers completed the IRP-15 (Martens et al., 1985), which was adapted to better fit the study’s parameters. Scores on the adapted IRP-15 were all within the acceptable range for the participants.

Kodak, Miltenberger, and Romaniuk (2003) evaluated the effects of noncontingent escape (NCE) and differential reinforcement of other behavior (DRO) in reducing problem behaviors and increasing compliance in two children with autism. Specific targeted behaviors included pounding, grabbing, throwing, pushing task materials, scribbling on materials with a pen, pounding/pushing a table, saying or shaking head no, resisting physical prompts, throwing a pen, and hitting the pen in the therapist’s hand. Compliance was measured as the number of trials in which the child initiated the task after the therapist initiated a demand and before an additional prompt was given, divided by the number of trials. During the NCE trials, a continuous break was given in the first treatment session, followed by a break every 10 s. After two
consecutive sessions, the NCE interval increased from 10 s to 20 s, to 30 s, to 1 min, to 1.5 min, and finally to 2 min. The interval increase occurred when the children met their individual behavior criterion level. During the DRO trials, the children received a continuous break. In the second treatment session, the DRO interval was 10 s. A 10-s break was provided if the child did not engage in problem behaviors. As sessions progressed, the DRO interval went from 10 s, to 20 s, to 30 s, to 1 min, and then to 2 min. Both NCE and DRO produced large decreases in problematic behaviors for both children. For one child, compliance increased from less than 10% to 100% with both NCE and DRO. For the other child, compliance increased from 56% to 83% with both DRO and NCE. In addition to measuring behaviors, the researchers were also interested in the treatment acceptability. Mothers of both children rated the acceptability of NCE and DRO using the TEI-SF (Kelley, Heffer, Gresham, & Elliott, 1989) after watching videotapes of treatment sessions near the end of the treatment phase. Both mothers rated the NCE and DRO treatments with high acceptability.

The studies cited above provide insightful information about the acceptability of treatments for children with autism after the treatment was implemented. However, they do not measure pretreatment judgments about acceptability as many of the analog studies often do. Because acceptability is thought to be a precursor to compliance of implementation (Reimers, Wacker, & Koepppl, 1987), measuring judgments prior to implementation may be beneficial for predicting compliance. Additionally, the studies cited above are limited by their small sample size. Studies that are primarily concerned with treatment acceptability often measure pretreatment judgments by using analog
methodologies, which easily allow for much larger sample sizes. Examples of such studies now follow.

**Acceptability as a Primary Outcome**

It is common practice in the treatment acceptability research to compare acceptability ratings for multiple treatments (Girio & Owens, 2009; Kazdin, 1981; Kutsick et al., 1991; Singh & Katz, 1985; Vereb & DiPerna, 2004; Von Brock & Elliott, 1987; Witt & Robbins, 1985; Witt et al., 1985;). Frederick’s (2002) utilized an analog methodology in her dissertation study to compare the acceptability of the following four treatments for children with ASD: behavioral interventions, structured teaching, social skills training, and medical interventions. Participants included 301 school psychologists, special educators, and parents of children with autism. Participants read a case about a child with ASD, followed by four vignettes explaining each treatment. After reading each vignette, participants completed the TEI-SF (Kelley, Heffer, Gresham, & Elliott, 1989). The variables of child age (early childhood classroom or intermediate school) and problem severity (less severe or severe) were manipulated. Therefore, there were a total of four different surveys with different combinations of the manipulated variables. Major findings were as follows: (a) psychosocial treatments were more acceptable than medical treatments; (b) parents rated all interventions more favorably than school psychologists and special educators; and (c) treatment acceptability did not vary as a function of child age or problem severity.

Fragioudakis’ (2009) dissertation study sought to expand the findings of Frederick’s (2002) study. Two-hundred and fifty-four parents of children with ASD, general educators, and special educators participated in the study. The survey included a case description of a child with ASD, followed by four treatment vignettes. Each
treatment was an example of a different social skills intervention (i.e., social stories, cognitive-behavioral programs, peer-mediated interactions, and technological devices). After reading the vignettes, participants completed the TEI-SF (Kelley, Heffer, Gresham, & Elliott, 1989). The variables of child age (3rd grade vs. 8th grade) and problem severity (less severe vs. severe) were manipulated to examine which factors influenced treatment acceptability. The study also examined how group membership (parent vs. teacher) and ethnicity of the respondent influenced treatment acceptability. Findings indicated the following: (a) that all four social skills treatments were viewed as acceptable; (b) group membership, ethnicity, child age, or problem severity did not influence treatment acceptability; (c) peer-mediated interactions and cognitive-behavioral programs received the highest rankings, followed by social stories and technological devices; and (d) significant associations were found between group membership and the overall rankings of cognitive-behavioral programs and technological devices.

Brubaker et al. (2010) investigated the acceptability of eight interventions that are typically recommended school-based interventions for addressing challenging behaviors among children with ASD. The researchers were also interested in exploring whether the use of a label made a difference in acceptability ratings, as well as the extent to which beliefs about autism held by school psychologists impacted their acceptance of the interventions. The interventions of interest were: clear rules and expectations, differential reinforcement/attention, home-school report card, peer-mediated intervention, positive reinforcement, response cost, self-management, timeout, and visual/verbal prompts. School psychologists read about a child displaying problematic
behaviors, either with or without being labeled as having autism. After reading about the child and a proposed intervention, participants completed the IRP-15 (Martens et al., 1985). Lastly, they completed the Autism Beliefs Scale (ABS), a 22-item instrument designed to measure beliefs about autism. The ABS was created by one of the authors for purposes of the study. The researchers reported that most of the interventions were rated as neutral in acceptability, regardless of the use of a label. The only exception was for visual/verbal prompts, as this intervention was rated as more acceptable when there was an autism label. Findings indicated that school psychologists performed well on the ABS, receiving an average 86% accuracy score. However, no relationship was found between ABS scores and treatment acceptability.

A limitation of this study is that the researchers did not use statistical analyses to compare the acceptability of interventions, so conclusions could not be drawn about which interventions were viewed as most and least acceptable. Another limitation involved the use of the ABS. It was designed for purposes of this study and validity evidence was not available. However, the researchers did investigate its reliability, and found it to be acceptable (Cronbach’s alpha = .806). Further research should be done on the ABS before firm conclusions are made regarding the relationship between teachers’ beliefs about autism and treatment acceptability.

**Implications for Practice**

Although autism is considered a low-incidence disability, great attention has been provided to interventions that improve functioning and adaptability for children with autism. Despite the significant amount of research that has attempted to demonstrate treatment effectiveness, findings are still largely inconclusive (Frederick, 2002). Because of this, parents and teachers may find themselves trying treatment after
Parents and professionals may be more likely to choose treatments based on personal preferences, availability, and philosophical matches rather than evidence-based research (Frederick, 2002). In addition to choice selection, if the treatment is not found acceptable, it is unlikely that it will be implemented with precision and consistency (Frederick, 2002). Therefore, acceptability of treatments for autism, in addition to empirical research as it becomes available, can greatly aid consultants who work with teachers and families of children with autism.

Callahan, Henson, and Cowan (2008) highlight that treatment acceptability research will also benefit schools on the district level, as many districts often fail to incorporate promising practices into autism programs in public schools. Because children with autism are likely to spend a significant amount of their intervention time in schools, the need for more research in the area of social validity of interventions for this population is of great importance (Callahan et al., 2008). Such research will be beneficial in identifying and alleviating the gaps in research-to-practice for autism interventions in schools.

**Limitations of Current Research on Treatment Acceptability**

Teachers’ perceptions of acceptability of various behavior interventions have gained noticeable attention since the 1980s (Carter, 2007). However, gaps in the literature still exist and future research is needed to answer many of these questions. Of relevance to this study are the current limitations related to our understanding of the relationships between autism, treatment acceptability, teacher background variables, and progress monitoring.
Treatment Acceptability and Autism

Despite the growing literature base on treatment acceptability of behavioral interventions in other areas, a paucity of research remains in the area of autism (Callahan, Henson, & Cowan, 2008; Frederick, 2002; King & Valdivinos, 2009). Additionally, little is known about how previous research in other areas might have implications for the area of autism. Generalizations from past research in other areas should be made with caution.

For instance, several studies have been conducted that have compared acceptability of positive versus reductive treatments (e.g., Elliott et al., 1984; Fairbanks & Stinnett, 1997; Kutsick et al., 1991; Witt & Robbins, 1985;), and findings consistently show that positive strategies are generally preferred for the types of behaviors described in those studies. However, past research has never compared teachers’ acceptability for positive versus reductive treatments for children with autism. Reductive treatments such as timeout are intended to bring displeasure to a child for an unwanted behavior, but in the case of autism, being removed from social settings may actually be reinforcing as they are removed from environmental social demands (Masse, 2010). Considerations such as this only highlight the importance of understanding teachers’ acceptability of positive and reductive treatments for children with autism.

In addition to the type of treatment (e.g., positive vs. reductive), little is known about teachers’ acceptability of specific types of interventions for children with autism. Researchers have taken care to measure acceptability of a number of interventions for children with autism in effectiveness studies, but these studies often have small sample sizes, limiting generalization to larger populations. Larger analog studies (Brubaker et al., 2010; Fragioudakis, 2009; Frederick, 2002) have perhaps made the greatest
headway is this line of research by examining, and sometimes comparing, the acceptability of interventions including social skills training, structured teaching, medical interventions, social stories, cognitive-behavioral programs, peer-mediated interactions, technological devices, clear rules/expectations, differential reinforcement, visual/verbal prompts, a home-school report card, response cost, self-management, and timeout. Further research should assess other interventions, as well as provide additional empirical support for the interventions already mentioned.

**Teacher Background Variables**

King and Valdovinos (2009) underscored for the need for future research that evaluates the effects of interventionist characteristics (e.g., age) on the acceptability of treatment for individuals with autism. In the field of education, teachers are often the primary interventionist, and their acceptability of treatments is important for achieving positive outcomes. Previous research has revealed many variables related to treatment acceptability, including variables related to the student/child, treatment, and the teacher (Elliott, 1985; Kazdin, 1980; Singh & Katz, 1985; Stinnett et al., 2001; Stinson, 2009; Vereb & DiPerna, 2004; Witt & Martens, 1983). However, gaps in the literature still exist; thus, many questions are still unanswered. For instance, many of the teacher background variables (e.g., teacher’s age, years of experience, class size, grade taught, previous experience with an intervention, and previous experience with certain behavior problems/disorders) are inconclusive regarding their influence on treatment acceptability due to the limited or mixed findings. Additionally, no research has been conducted that has examined the influence of these particular teacher variables on treatment acceptability of interventions for children with autism.
Another teacher background variable that has been examined in recent years and worthy of discussion for its relationship with treatment acceptability is that of teacher self-efficacy. The findings on teacher self-efficacy and treatment acceptability are still mixed (Lackey, 2006; Girio & Owens, 2009), perhaps due to a difference in instrumentation of teaching efficacy scales or a difference of treatments that were addressed in the study. Additionally, the available research has measured efficacy as a broader domain, but never specifically as it relates to efficacy in classroom management and discipline. For instance, Lackey (2006) used a shortened version of the Teacher Efficacy Scale (TES; Gibson & Dembo, 1984). This scale yields two dimensions: personal teaching efficacy (teachers’ beliefs that they know suitable teaching techniques to help students learn) and teaching efficacy (belief that a teacher’s impact is limited by external influences such as the home environment). According to Emmer and Hickman (1991), the TES provided a starting point for teacher efficacy research. However, only two items on the TES address self-conceptions about behavior management directly. Emmer and Hickman posited that classroom management and discipline is a domain that is both conceptually and behaviorally different than the ability to influence learning or achievement outcomes. This led them to develop of the Teacher Efficacy in Classroom Management and Discipline scale (TECMD; Emmer & Hickman, 1991). Because treatment acceptability research often examines behavioral interventions, using an efficacy scale that is specifically designed for examining teachers’ self-conceptions about behavior management (such as the TECMD) may improve our understanding on the relationship between acceptability and teacher efficacy.
Progress Monitoring

An important part of any treatment implementation is the use of data that can be used to monitor outcomes and evaluate effectiveness. With the passage of recent legislation (i.e., Individuals with Disabilities Education Improvement Act of 2004 and No Child Left Behind of 2001), there has been an increased emphasis on documenting student outcomes. In order to support accountability, educators must monitor how students respond to behavioral accommodations (Riley-Tillman, Kalberer, & Chafouleas, 2005). Examples of progress monitoring include daily teacher ratings, direct observations, and percent of points earned on a behavior card (Michigan Department of Education, 2008). Riley-Tillman, Kalberer, and Chafouleas (2005) also identify behavior rating scales and permanent products as potential behavior monitoring tools. Regardless of the type, progress monitoring must be frequent, efficient, reflect the behavior of interest, and be sensitive to change (Michigan Department of Education, 2008). In addition, teachers are often the ones implementing classroom-based interventions and may be responsible for collecting progress monitoring data. Despite the importance of progress monitoring, research was not found that examined the relationship between treatment acceptability and a teacher’s likelihood to keep and use progress monitoring data. According to Reimers, Wacker, and Koeppl’s (1987) model of treatment acceptability, high acceptability leads to high compliance, and low acceptability leads to low compliance. If keeping and using progress monitoring data is an important part of complying with an intervention (such as in schools that emphasize the need for outcome data for accountability and decision-making purposes), then acceptability may lead to a teacher’s likelihood to keep and use progress monitoring data. However, research is clearly needed before any conclusions are made.
Purpose

The purpose of the current study was to build upon the literature by examining teachers’ perceptions of acceptability, effectiveness, and timeliness of effect of three different approaches for addressing social skills concerns in children with ASD. The three approaches under study are two positive behavioral supports (social stories and self-management) and one negative approach (seclusion timeout with verbal warnings). No study has simultaneously examined these three specific social skills interventions for children with ASD. Also, no study in the area of autism has compared teachers’ acceptability of positive and reductive strategies, although this is a common practice in other areas of treatment acceptability research. Teacher variables (i.e., years of experience, age, grade taught, class size, previous contact with students with ASD, previous intervention use, and teacher efficacy in classroom management and discipline) were also examined for their influence on treatment acceptability for interventions for children with ASD. Conclusions regarding these variables’ influence on treatment acceptability are still limited or mixed in the literature base, so this study seeks to provide more information on these variables. Additionally, these variables have never been studied as they relate to acceptability of treatments for children with ASD.

The second purpose of this study was to explore teachers’ willingness of collecting and using data to monitor the social skills interventions, and whether teachers’ likelihood differs based on the type of intervention. In addition, it was determined whether teachers’ perceptions of acceptability, effectiveness, and timeliness of effect influence their likelihood of collecting and using progress monitoring data for an intervention.
Figure 1-1. Witt and Elliott’s (1985) model of treatment acceptability
Figure 1-2. Reimers, Wacker, and Koeppel's (1987) model of treatment acceptability
CHAPTER 2
METHODS

This study compared teachers’ perceptions of acceptability, effectiveness, and timeliness of effect of three social skills interventions (i.e., social stories, self-management, timeout) for children with autism spectrum disorders (ASD). The influence of teacher variables on teachers’ perceptions of acceptability was also explored. Additionally, teachers’ likelihood to keep and use progress monitoring was compared across the three treatments. Lastly, this study examined the influence of teachers’ perceptions about treatment acceptability, effectiveness, and timeliness of effect on their likelihood to keep and use progress monitoring data. The present chapter describes the participants, materials/measures, design, and procedures of this study. The research questions and data analyses will be discussed at the end of the chapter.

Participants

A total of 238 teacher participants were recruited from 24 school districts in Florida, Missouri, and Iowa. Participation was completely voluntary, and participants were not compensated for their participation. Because the Institutional Review Board (IRB) required that computer IP addresses were masked, it is not possible to know how many schools in each district participated. However, teachers were asked to indicate the state in which they worked. The number of participants from each state was as follows: Florida ($n = 208, 87.8\%$), Missouri ($n = 16, 6.7\%$), and Iowa ($n = 13, 5.5\%$). Since a representative from each participating district forwarded the introductory email to teachers, and the researcher never contacted teachers directly, it is unclear how many individuals were asked to participate. However, based on the survey counter, 754
people viewed the informed consent page and abandoned the survey before completion. Therefore, the response rate that can be best estimated is 24%.

The majority of participants were Caucasian ($n = 227, 95.4\%$), followed by African American ($n = 5, 2.1\%$), Hispanic ($n = 3, 1.3\%$), Asian-American ($n = 2, 0.8\%$), and Other ($n = 1, 0.4\%$). Additionally, a majority of participants were female ($n = 226, 94.96\%$); men were largely underrepresented ($n = 12, 5.04\%$). Participants ranged in age from 23 to 68 years ($M = 43.18, SD = 11.27$). Regarding educational background, the majority of participants had a bachelors ($n = 123, 51.7\%$), followed by a masters ($n = 105, 44.1\%$), educational specialist ($n = 7, 2.9\%$), and doctorate ($n = 3, 1.3\%$). Additionally, 32.4\% ($n = 77$) of participants had a certification in special education. It is important to note that certification cannot imply that they work as a special education teacher; it is only known that they have received this additional training in route to certification. Teachers ranged in experience from 1 to 45 years ($M = 13.02, SD = 9.38$).

**Measures and Materials**

The complete survey can be found in Appendix A. Measures and materials included a demographics sheet, the Teacher Efficacy in Classroom Management and Discipline Scale (TECMD), the case and treatment vignette, the Behavior Intervention Rating Scale (BIRS), and two questions pertaining to the participant’s previous use of the intervention and likelihood to keep and use progress monitoring data.

**Demographics Sheet**

The demographics survey asked participants to indicate their age, gender, race, the state they work in, number of years of teaching experience, grade taught, highest degree earned, whether they had a certification in special education, and number of students in their classroom. Participants were also asked to identify the number of
students with ASD they have taught during their career. Kos, Richdale, and Jackson (2004) used a similar method when they asked teachers how many students with attention-deficit/hyperactivity disorder (ADHD) they had taught over the course of the career when looking at the impact of contact on teacher knowledge of ADHD.

**Teacher Efficacy in Classroom Management and Discipline Scale (TECMD)**

Teachers’ efficacy in classroom management and discipline was measured via the TECMD (Emmer & Hickman, 1991). For purposes of this study, only the Classroom Management and Discipline scale was utilized. The TECMD is a modified version of the Teacher Efficacy Scale (TES) by Gibson and Dembo (1984). The TES assesses two factors: Personal Teaching Efficacy and Teaching Efficacy. Personal Teaching Efficacy reflects the belief that one is knowing of teaching techniques and is competent to help students learn and be successful. Teaching Efficacy reflects the belief that teachers are limited on their ability to influence students because of external influences such as the home and child’s background (Emmer & Hickman, 1991). Emmer and Hickman added additional items to their instrument in order to assess teacher efficacy regarding classroom management and discipline skills and abilities, as they believed this is a separate domain of efficacy from the ability to influence learning or achievement outcomes. The TECMD is a 36-item measure that assesses three factors: teachers’ self-efficacy related to classroom management and discipline, external influences, and personal teaching efficacy. Intercorrelations of scales were found to be the following: Classroom Management and Discipline and External Influences (.20), Classroom Management and Discipline and Personal Teaching Efficacy (.41), and External Influences and Personal Teaching Efficacy (.08). Internal-consistency estimates of coefficient alpha reliability were found to be the following: Classroom Management and
Discipline (.79), External Influences (.78), and Personal Teaching Efficacy (.68). Test-retest correlations were found to be the following: Classroom Management and Discipline (.75), External Influences (.86), and Personal Teaching Efficacy (.84).

Evidence of validity for this scale was supported by showing that efficacy beliefs predict teachers' preferences for certain strategies for dealing with problematic behaviors (Emmer & Hickman, 1991). Vignettes describing various student academic and behavioral problems were presented to teacher participants. Participants were asked to indicate their likelihood for using 14 different strategies on a 5-point Likert scale. The strategies were grouped into three sets: reductive strategies (e.g., timeout, warning, consequences), positive strategies (e.g., praising the student, modifying assignments and teaching approaches, and providing extra attention), and external support (e.g., referring student, enlisting peer support). Correlations were calculated between the teacher efficacy subscales and participants' vignette responses and are as follows: Classroom Management and Discipline (positive strategies, .30; reductive strategies, .00; external support, .09); External Influences (positive strategies, -.20; reductive strategies, .08; external support, -.03); and Personal Teaching Efficacy (positive strategies, .32; reductive strategies, .11; external support, .20). The authors attempt to explain the surprising finding of the positive correlation between Personal Teaching Efficacy and external support strategies by saying that teachers who agree with the use of such external resources in a sense do reflect an attempt to make positive change.

Vignette

A vignette describing an elementary school-aged child with problematic social behaviors consistent with ASD was presented to the participants. The child described in
the vignette was created from descriptions in the literature and behavior rating scales. In addition, it was reviewed by two faculty experts in the area of autism. They were asked to evaluate whether the vignette accurately described a student with autism in a general education classroom who displays problematic social skills behaviors. Although the range of behaviors for children with autism can vary greatly, the vignette can only portray one possible case. Great care was provided to ensure that the vignette displayed a range of general social behaviors.

One of three treatments (social stories, self-management, or a timeout procedure) was presented following the description of the student. Treatment groups were randomly assigned by the online survey software. The three treatment descriptions were drawn from the literature, consistent with Witt and Robbins’ (1985) procedures for designing treatment vignettes. It was also reviewed by two faculty experts in the area of autism. They were asked to evaluate whether the descriptions clearly depicted the components and processes of the treatment, and whether the treatments were appropriate and potential options within the setting of a classroom for the child described in the vignette.

**Behavior Intervention Rating Scale (BIRS)**

Following the vignette, participants were presented with the BIRS, a 24-item measure used to assess three dimensions related to treatment acceptability – acceptability, effectiveness, and timeliness of effect (Elliott & Von Brock Treuting, 1991). The BIRS consists of a revision and extension of the IRP-15 (Martens et al., 1985). Items on the BIRS are answered on a 6-point Likert format (1 = strongly disagree, 6 = strongly agree). Nine new items were added to the IRP-15 addressing topics such as perceived level of change, maintenance and generalization of change, peer
comparisons, and timeliness of effect. The nine additional items are referred to as the Effectiveness Rating Profile.

Pisecco, Huzinec, and Curtis (2001) provided validity and reliability evidence in support of the BIRS. Coefficient alphas for each factor include .97 (Acceptability), .92 (Effectiveness), and .87 (Timeliness of Effect). The total BIRS yielded an alpha of .97. The three factors accounted for 73.3% of the total variance (Acceptability, 63%; Effectiveness, 6%; Timeliness of Effect, 4.3%). The Acceptability factor was found to be highly correlated with Effectiveness (.79), and moderately correlated with Timeliness of Effect (.65). The correlation between the Evaluation factor and Timeliness of Effect factor was moderate (.63). When the Timeliness of Effect factor was partialed from the Acceptability and Effectiveness factors, the correlation was .64 (Elliott & Von Brock Treuting, 1991).

The BIRS has also shown to significantly correlate with the Semantic Differential (SD; Osgood, Suci, & Tannenbaum, 1957) (Elliott & Von Brock Treuting, 1991). Specifically, the Evaluation factor on the SD was the basis for comparison. The correlation between the Evaluation factor and the Acceptability factor was high (.78), and the Effectiveness factor was moderate (.67, respectively). The correlation between the Evaluation factor and Timeliness of Effect factor was moderate (.52). All three scales of the BIRS (i.e., Acceptability, Effectiveness, and Timeliness of Effect) will be utilized for this study.

**Previous Intervention Use and Progress Monitoring**

After reading about the intervention and completing the BIRS, teachers were asked to indicate whether they have ever used the intervention (described in the treatment vignette) in their classroom. Participants responded in a Yes/No format. After
indicating their previous intervention use, participants were asked to rate their likelihood for keeping and using progress data to monitor the intervention. Responses were rated on a 6-point Likert scale (1 = Very unlikely to 6 = Very likely).

**Design**

Participants were randomly assigned to one of the three treatment conditions (i.e., social stories, self-management, timeout). Treatment assignment was randomly generated by Surveygizmo (2010), an online web-based survey tool. Participants in each condition only viewed their respective treatment (e.g., participants in the social stories group viewed only the social stories vignette). However, the presentation order of scales and vignettes did not vary between groups. The presentation of materials is presented in the following section. Testing took approximately 5-10 minutes.

**Procedure**

Permission to use the BIRS and the TECMD was obtained from the authors (Appendix B). The necessary materials were sent to the Institutional Review Board at the University of Florida for a human subjects review and approved on September 13, 2010. For participant recruitment, school administrators in Florida, Missouri, and Iowa were emailed asking for their district’s assistance in this study. The initial contact email can be found in Appendix C. These states were chosen based on the researchers’ contacts in these states and the researcher’s physical location. In districts where it applied, formal research request procedures were followed. Once permission was granted by the district, the researcher provided the designated school administrator (e.g., principal, superintendent, officer of research) with a template email for the teachers with the survey link. A template of the email sent to teachers can be found in Appendix C. The school administrator had the sole responsibility of contacting teachers
with the survey link via the school listserv. Teachers were never directly contacted by the researcher.

If teachers elected to click on the link provided in the email, they were directed to the title page of the survey and the informed consent. The informed consent described the requirements as well as potential benefits of the study. Participants were encouraged to print the consent page for their own records. Participants were not permitted to participate in the study until after they had acknowledged their agreement with the study parameters. Because this study was conducted electronically, participants were required to click a box that indicated they have read and agreed with the specified terms. If they elected to opt out of the study, they were directed to close the window.

Once participants provided their consent, they were directed to a series of webpages which presented forms in the following order: a demographics sheet, the Classroom Management and Discipline Scale of the TECMD, a description of the student, and one of the three treatment vignettes (based on their assigned treatment condition). After reading about the treatment, they completed the scales for the dependent variables. The first scale (the BIRS) assessed their views of acceptability, effectiveness, and timeliness of effect. On the second scale, participants rated their likelihood of keeping and using progress monitoring data for the proposed intervention. The last question asked participants to indicate whether they have ever used the proposed intervention in a yes/no format.

Lastly, the participants read about the two other interventions. For example, teachers in the social stories group read the descriptions about self-management and
timeout. After reading about each intervention, they were asked to indicate whether they had ever used the intervention. This additional data was only collected for purposes of preliminary group comparisons. On the last page, participants were presented with a thank you letter for their participation.

**Research Questions**

The current study explored treatment acceptability of three different social skills interventions that are commonly used with children with autism spectrum disorders. The interventions included social stories, self-management, and timeout. The study answered the following questions using survey methodology:

1. Are there differences in teachers' perceptions of treatment acceptability, treatment effectiveness, and timeliness of effect, based on the intervention (i.e., social stories, self-management, timeout)?

2. Do years of teaching experience, age, grade taught, class size, previous contact, previous intervention use, and teacher efficacy in classroom management and discipline influence teachers' treatment acceptability for the three interventions?

3. Are there differences in teachers' likelihood to keep and use progress monitoring data, based on the intervention (i.e., social stories, self-management, timeout)?

4. Do teachers' perceptions of treatment acceptability, treatment effectiveness, and timeliness of effect predict a teacher's likelihood for keeping progress monitoring data for the three interventions?

**Statistical Analyses**

**Preliminary Analysis**

Descriptive statistics for all variables and Pearson correlations between all variables were calculated during the preliminary analysis. Cronbach’s alpha was also calculated on all scales of the measures. In order to test for differences between groups based on teacher variables (e.g., years of experience, age, number of students in
classroom), the Shaffer-Holm procedure was used. For variables that were nominal (e.g., ethnicity, gender, degree status), chi-square tests were used.

**Research Question 1**

The first aim of this study was to determine whether teachers’ perceptions of acceptability, effectiveness, and timeliness of effect differ based on treatment type. A Shaffer-Holm procedure was used to determine the effect of intervention type on each of the three interval dependent variables (acceptability, effectiveness, timeliness of effect). The following planned comparisons were made: social stories vs. self-management, social stories vs. timeout, and self-management vs. timeout.

**Research Question 2**

The second aim of this study was to determine if treatment effects on acceptability are influenced by teacher variables (years of experience, teacher age, grade taught, class size, previous contact, previous intervention use, and teacher efficacy in classroom management and discipline). This was done using one-way ANCOVAs (analysis of covariance), where all teacher variables served as covariates, group type as the fixed factor, and acceptability as the dependent variable. Main effects and two-way interactions were tested. Pairwise comparisons were made using the Shaffer-Holm procedure.

**Research Question 3**

The third aim of this study was to determine whether teachers’ likelihood to keep and use progress monitoring data differs based on the intervention type. Responses to Likert scales may fall in a number of categories that are ordered and separated by unknown distances. Therefore, Likert scale responses should not be treated as
continuous variables, but rather as ordinal variables (Winship & Mare, 1984). Because the dependent variable is ordinal, ordinal regression was used.

Research Question 4

Lastly, the influence of treatment acceptability, treatment effectiveness, and timeliness of effect for predicting teachers’ willingness to keep and use progress monitoring data was examined. Ordinal regression was used. The analysis included estimating the model with all main effects and interactions between the treatment and each of acceptability, treatment effectiveness, and timeliness of effect.
CHAPTER 3
RESULTS

The results of the study are presented in this chapter. The first section provides information about the preliminary analysis, including the descriptive statistics for the variables, correlations, coefficients of internal consistency for the scales, and preliminary group comparisons. The second section presents findings from the statistical analyses for each of the four research questions. Research Question 1 was answered using the Shaffer-Holm procedure, which compared treatments on measures of acceptability, timeliness, and timeliness of effect. Research Question 2 was answered through one-way ANCOVAs (analysis of covariance) to determine if treatment effects on acceptability are influenced by teacher variables (years of experience, teacher age, grade taught, class size, previous contact, previous intervention use, and teacher efficacy in classroom management and discipline). Research Question 3 was answered by using ordinal regression to determine whether teachers’ likelihood to keep and use progress monitoring data varied dependent on the intervention being implemented. Research Question 4 was answered by using ordinal regression to determine whether teachers’ perceptions of acceptability, effectiveness, and timeliness of effect influenced their likelihood to keep and use progress monitoring data. Tables and figures are listed at the end of this chapter.

Preliminary Analysis

Teacher Demographics

Table 3-1 displays additional teacher demographics for the teacher variables that were of particular interest of this study (i.e., age, years of experience, number of students in classroom, numbers of students with autism spectrum disorders (ASD)
taught during career, teacher efficacy in classroom management and discipline). Table 3-2 presents the descriptive statistics for grade level taught (K-6). Table 3-3 presents descriptive statistics for previous use (yes/no) for the three treatment groups.

Two important notes are made. First, the number of students in the classroom has a wide range (1 to 82). One possible explanation is that teachers in this study may serve in a variety of settings (e.g., special education, resource room, teaching aide, rotating teachers who serve in a couple of classrooms). Second, a few teachers reported seemingly high numbers (e.g., 300, 100) for the number of students with ASD they have taught during their career. One possible explanation for this exceptionally high level of previous contact is that these teachers may have served in settings exclusively for students with ASD. Please refer to the discussion on Research Question 2 for a description on how these potential leverage points were addressed in the analysis.

**The Behavior Intervention Rating Scale and Progress Monitoring**

Table 3-4 displays descriptive statistics for the three Behavior Intervention Rating Scale (BIRS) factors - acceptability, effectiveness, and timeliness of effect. Descriptive statistics for teachers’ likelihood to keep and use progress monitoring data (PDATA) are also presented in Table 3-4. Findings are presented under each treatment group.

**Internal Consistency**

In order to determine how well the set of items in each scale measured the targeted construct, Cronbach’s alpha statistics were calculated. Table 3-5 displays the Cronbach’s alpha for the Teacher Efficacy in Classroom Management and Discipline scale (TECMD) and for the three scales from the BIRS (Acceptability, Effectiveness, and Timeliness of Effect). DeVellis (1991) explains that alpha coefficients between .80
and .90 are considered very good. All scales used in this study demonstrated very good
to excellent internal consistency.

**Correlations**

Correlations between teacher variables are presented by treatment group in
Table 3-6. Correlations between the teacher variables, and the BIRS and PDATA
variables, are presented in Table 3-7. Lastly, the correlations between the BIRS and
PDATA variables are presented in Table 3-8

**Preliminary Group Comparisons**

Group comparisons were made in order to identify how groups may differ based
on teacher characteristics. An important assumption of ANOVA (analysis of variance) is
homogeneity of variance. Therefore, one of the first steps of the analysis was to
evaluate the equality of variances. In cases which equal variances could not be
assumed (i.e., a significant Levene’s test), a Welch’s ANOVA was used. Years of
experience was the only variable with a significant Levene’s test, so equal variances
could not be assumed, \( F[2, 235] = 8.98, p = .00 \). The Welch’s ANOVA revealed that
years of teaching experience was significantly different across the three groups, \( F(2, 235) = 3.53, p = .03 \). Pair-wise comparisons indicated that years of experience in the
self-management group was different than in the timeout group. The Shaffer-Holm
procedure, using Bonferroni’s correction, was used for all other numerical variables
when equal variances were assumed. All other comparisons were not significant.

Chi-square statistics were calculated for all nominal teacher variables. These
variables included gender, special education certification status, ethnicity, state in which
they reside, previous use of intervention, and grade taught. There were no significant
differences among the three groups.
Research Questions

Research Question 1

The first question of this study was designed to examine whether teachers’ perceptions of acceptability, effectiveness, and timeliness of effect differ based on the intervention type (i.e., social stories, self-management, and timeout). A preliminary analysis was performed to evaluate the equality of variances. Equal variances were not assumed for acceptability ($F[2, 235] = 11.43, p = .00$) and effectiveness ($F[2, 235] = 6.49, p = .00$). The Shaffer-Holm procedure was used to conduct pairwise comparisons of means. The Shaffer-Holm procedure consists of an omnibus test followed by pairwise comparisons if the omnibus test is significant. For acceptability and effectiveness, Welch’s ANOVA was used for the omnibus test, and Welch’s t-tests were used to make pairwise comparisons between intervention groups. Because equal variances could be assumed across the intervention groups for timeliness of effect, ANOVA was used for the omnibus test, and t-tests were used to make pairwise comparisons between intervention groups. Results are displayed in Table 3-9. A more detailed description of findings for each dependent variable now follows.

Acceptability

Perceptions of acceptability differed significantly across the three intervention types, $F(2, 235) = 16.93, p = .00$. Pairwise comparisons (i.e., social stories vs. self-management, social stories vs. timeout, and self-management vs. timeout) were made through a series of Welch’s t-tests. Table 3-10 displays the result for this analysis. Results indicate that teachers’ acceptability of social stories ($M = 71.8$) was significantly different than the self-management ($M = 64.2$) and timeout interventions ($M = 59.4$).
Teachers’ acceptability of the self-management intervention was also significantly different than the timeout intervention.

**Effectiveness**

Teachers’ perceptions of the interventions’ effectiveness differed significantly across the three intervention types, $F(2, 235) = 18.12, p = .00$. Pairwise comparisons (i.e., social stories vs. self-management, social stories vs. timeout, and self-management vs. timeout) were made through a series of Welch’s t-tests. Teachers perceived effectiveness of social stories ($M = 27.5$) and the self-management ($M = 25.8$) intervention was significantly different than the timeout intervention ($M = 21.4$). Teachers’ perceptions of effectiveness were not significantly different for the social stories and self-management interventions. Table 3-11 displays the results for this analysis.

**Timeliness of Effect**

Perceptions of timeliness of effect differed significantly across the three intervention types, $F(2, 235) = 8.48, p = .00$. Pairwise comparisons (i.e., social stories vs. self-management, social stories vs. timeout, and self-management vs. timeout) using the Bonferroni post hoc criterion for significance indicated that teachers’ perceptions of timeliness of effect for social stories ($M = 7.7$) and self-management ($M = 7.3$) was significantly different than the timeout intervention ($M = 6.3$). There was not a significant difference between the social stories and self-management interventions. Results can be found in Table 3-12.

**Research Question 2**

The second question of this study asked whether treatment effects on acceptability are influenced by teacher variables (years of experience, teacher age,
grade taught, class size, previous contact, previous intervention use, and teacher
efficacy in classroom management and discipline). A one-way ANCOVA was employed
for this analysis. However, leverage points were first addressed.

**Leverage Points**

During the residual and graphic analysis, outliers were identified under two of the
variables - number of students with ASD taught (two outliers, values: 300 and 100), and
the number of students in the classroom (18 outliers, values: less than 10 and greater
than 40). The analyses were re-estimated without these variables for exploratory
purposes. Significant findings did not change as a result of this process. Therefore, the
final results of this study reflect the analysis of the complete data set.

**Analysis of Covariance (ANCOVA)**

In order to determine if treatment effects on acceptability are influenced by
teacher variables, a one-way ANCOVA was performed where all teacher variables
served as covariates, group type as the fixed factor, and acceptability as the dependent
variable. Main effects and two-way interactions were tested between the intervention
types and teacher variables. The results can be seen in Table 3-13. The interaction
between previous use and intervention type was significant, $F(2,214) = 5.44, p = .005$.
Because the interaction was significant, a one-way ANCOVA was conducted again.
This time, only the two-way interaction between intervention type and previous use, and
the main effects were kept in the model.

Table 3-14 displays the teacher variable parameter estimates. Years of
experience ($\beta = -.25, t[229] = -2.86, p = .00$), and number of students with ASD
($\beta = -.15, t[229] = -2.57, p = .01$) were both significant. Because the data output did not
produce standardized coefficients, betas were manually calculated using the following formula: (SD of the IV/SD of acceptability) x B.

The interaction between intervention type and previous use was significant, $F(2, 226) = 4.62, p = .01$ (Table 3-15). Table 3-16 displays the adjusted and marginal means of previous use and treatment. This illustrates the differences among the treatments by level of previous use. In order to compare treatment means for no previous use and previous use, the Shaffer-Holm procedure was used. Findings were significant for no use: $F(2,226) = 13.65, p = <.0001$; and for use: $F(2,226) = 15.22, p = <.0001$.

Pairwise comparisons are displayed in Table 3-17. These findings suggest that when teachers had no previous use of the intervention, there were significant differences among treatment acceptability, with significant pairwise differences for timeout ($M = 51.1$) vs. social stories ($M = 68.3$) and self-management ($M = 63.6$). When teachers did have previous use of the intervention, there were significant differences among treatments, with significant pairwise differences for social stories ($M = 76.1$) versus self-management ($M = 63.3$) and timeout ($M = 64.0$). Figure 3-1 illustrates this relationship.

The relationship between no previous use and previous use for each treatment on ratings of acceptability was also explored. Pairwise comparisons were made for no previous use and previous use for each treatment. Means for no previous use and previous use were significantly different for social stories and timeout. Results are displayed in Table 3-18, and Figure 3-2 illustrates this relationship.

**Research Question 3**

The third question of this study was designed to look at whether the intervention type predicts teachers’ likelihood to keep and use progress monitoring data (PDATA). Because the dependent variable is ordinal (i.e., Likert scale consisting of one item with
six response options), ordinal regression was used. Teachers’ likelihood to keep and use progress monitoring data was significantly different for the three interventions, $\chi^2(2, N = 238) = 10.61, p = .005$.

Teachers were significantly more likely to keep and use progress monitoring data for social stories and the self-management intervention than for the timeout intervention ($\beta = .89, \chi^2[1, N = 238] = 9.39, p = .00; \beta = .75, \chi^2[1, N = 238] = 6.61, p = .01$, respectively). When comparing teachers’ likelihood to keep and use progress monitoring data for the social stories and self-management interventions, there was not a significant difference between the groups ($\beta = .14, \chi^2[1, N = 238] = 0.23, p = .63$). The results are displayed in Table 3-19.

**Research Question 4**

The fourth and final question of this study asked if teachers’ perceptions of treatment acceptability, treatment effectiveness, and timeliness of effect predict teachers’ willingness to keep and use progress monitoring data for the three interventions. Ordinal regression was used. The first step of this analysis included estimating the model with all main effects and interactions between the treatment and each of acceptability, treatment effectiveness, and timeliness of effect. The results can be found in Table 3-20. No significant interactions were found; therefore, only main effects were included in the final model. Teachers’ acceptability of the intervention was the only variable that significantly predicted teachers’ likelihood to collect and use progress monitoring data when all other variables were controlled ($\beta = .06, \chi^2[1, N = 238] = 17.51, p = .00$). The results from this analysis can be found in Table 3-21. The fact that there were no significant differences among the treatments when teachers’
acceptability of the intervention was included in the model implies that acceptability mediates the effect of treatment on willingness to keep and use progress monitoring data.
Table 3-1. Descriptive statistics for teacher variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
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<th>Range</th>
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<td>1-82</td>
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</tr>
<tr>
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<td></td>
<td></td>
</tr>
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Note. \(^a\) Autism Spectrum Disorder. \(^b\) Teacher Efficacy in Classroom Management and Discipline.
Table 3-2. Descriptive statistics for grade level

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</tr>
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<td>18.1</td>
</tr>
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<td>12.0</td>
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Table 3-3. Descriptive statistics for previous use

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Table 3-4. Descriptive statistics for the Behavior Intervention Rating Scale (BIRS) and likelihood to keep and use progress monitoring data (PDATA) by treatment group

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<sup>Note.</sup> <sup>a</sup>Likelihood to keep and use progress monitoring data.
<table>
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<td>.853</td>
</tr>
</tbody>
</table>

*Note.* ^aTeacher Efficacy in Classroom Management and Discipline.
Table 3-6. Correlations between all teacher variables by treatment group

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>Social Stories</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Age</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ASD(^a) Contact</td>
<td>.218(^*)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Years Experience</td>
<td>.733(^**)</td>
<td>.279(^*)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. # of Students</td>
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<td>-.093</td>
<td>.107</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. TECMD(^b)</td>
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<td>.03</td>
<td>.058</td>
<td>1.00</td>
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<td></td>
</tr>
<tr>
<td>6. Grade Level</td>
<td>-.087</td>
<td>.163</td>
<td>-.137</td>
<td>.127</td>
<td>.142</td>
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<td>1.00</td>
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<tr>
<td>7. Previous use</td>
<td>-.105</td>
<td>.056</td>
<td>-.218(^*)</td>
<td>-.133</td>
<td>.164</td>
<td>-.131</td>
<td>1.00</td>
</tr>
<tr>
<td>Self-Management</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>2. ASD(^a) Contact</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3. Years Experience</td>
<td>.671(^**)</td>
<td>.066</td>
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<td></td>
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</tr>
<tr>
<td>4. # of Students</td>
<td>.096</td>
<td>-.151</td>
<td>.066</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. TECMD(^b)</td>
<td>.026</td>
<td>.212</td>
<td>.157</td>
<td>.062</td>
<td>1.00</td>
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<tr>
<td>6. Grade Level</td>
<td>.107</td>
<td>.019</td>
<td>.118</td>
<td>.418(^**)</td>
<td>.125</td>
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<td>1.00</td>
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<tr>
<td>7. Previous use</td>
<td>.162</td>
<td>.018</td>
<td>.197</td>
<td>.185</td>
<td>.172</td>
<td>.114</td>
<td>1.00</td>
</tr>
<tr>
<td>Timeout</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Age</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>2. ASD(^a) Contact</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Years Experience</td>
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<td>-.009</td>
<td>1.00</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. # of Students</td>
<td>.028</td>
<td>.475(^**)</td>
<td>.011</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. TECMD(^b)</td>
<td>.293(^**)</td>
<td>.065</td>
<td>.280(^*)</td>
<td>-.020</td>
<td>1.00</td>
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<td></td>
</tr>
<tr>
<td>6. Grade Level</td>
<td>-.043</td>
<td>.073</td>
<td>-.147</td>
<td>.234(^*)</td>
<td>-.285(^*)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>7. Previous use</td>
<td>.105</td>
<td>.128</td>
<td>.048</td>
<td>.097</td>
<td>-.108</td>
<td>.001</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note.* \(^a\) Autism Spectrum Disorder. \(^b\) Teacher Efficacy in Classroom Management and Discipline. \(^*\)\(p < .05.\) \(^**\)\(p < .01.\)
Table 3-7. Correlations between teacher variables, BIRS, and PDATA, by treatment group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Acceptability</th>
<th>Effectiveness</th>
<th>Timeliness</th>
<th>PDATA&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Stories</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Age</td>
<td>-.010</td>
<td>.033</td>
<td>.061</td>
<td>.055</td>
</tr>
<tr>
<td>2. ASD&lt;sup&gt;b&lt;/sup&gt; Contact</td>
<td>.006</td>
<td>-.050</td>
<td>-.007</td>
<td>.010</td>
</tr>
<tr>
<td>3. Years Experience</td>
<td>-.195</td>
<td>-.190</td>
<td>-.054</td>
<td>-.175</td>
</tr>
<tr>
<td>4. # of Students</td>
<td>.051</td>
<td>.098</td>
<td>-.049</td>
<td>.072</td>
</tr>
<tr>
<td>5. TECMD&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.025</td>
<td>-.028</td>
<td>-.009</td>
<td>.215</td>
</tr>
<tr>
<td>6. Grade Level</td>
<td>.091</td>
<td>-.166</td>
<td>-.222&lt;sup&gt;*&lt;/sup&gt;</td>
<td>-.017</td>
</tr>
<tr>
<td>7. Previous use</td>
<td>.355&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.190</td>
<td>.304&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.494&lt;sup&gt;**&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Self-Management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Age</td>
<td>.079</td>
<td>.007</td>
<td>-.098</td>
<td>-.125</td>
</tr>
<tr>
<td>2. ASD&lt;sup&gt;b&lt;/sup&gt; Contact</td>
<td>-.167</td>
<td>-.179</td>
<td>-.250&lt;sup&gt;*&lt;/sup&gt;</td>
<td>.064</td>
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<td>3. Years Experience</td>
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<td>-.029</td>
<td>-.083</td>
<td>-.100</td>
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<td>4. # of Students</td>
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<td>.145</td>
<td>.046</td>
<td>-.009</td>
</tr>
<tr>
<td>5. TECMD&lt;sup&gt;c&lt;/sup&gt;</td>
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<td>.001</td>
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<td>.205</td>
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<td>6. Grade Level</td>
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<td>.106</td>
<td>.041</td>
<td>.148</td>
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<tr>
<td>7. Previous use</td>
<td>-.027</td>
<td>-.131</td>
<td>-.169</td>
<td>.019</td>
</tr>
<tr>
<td><strong>Timeout</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Age</td>
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<td>-.196</td>
<td>-.172</td>
<td>.009</td>
</tr>
<tr>
<td>2. ASD&lt;sup&gt;b&lt;/sup&gt; Contact</td>
<td>-.128</td>
<td>-.220</td>
<td>-.077</td>
<td>.170</td>
</tr>
<tr>
<td>3. Years Experience</td>
<td>-.213</td>
<td>-.214</td>
<td>-.237&lt;sup&gt;*&lt;/sup&gt;</td>
<td>-.127</td>
</tr>
<tr>
<td>4. # of Students</td>
<td>-.120</td>
<td>-.201</td>
<td>-.140</td>
<td>-.009</td>
</tr>
<tr>
<td>5. TECMD&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-.139</td>
<td>-.123</td>
<td>-.166</td>
<td>.101</td>
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<tr>
<td>6. Grade Level</td>
<td>-.064</td>
<td>-.049</td>
<td>-.048</td>
<td>-.115</td>
</tr>
<tr>
<td>7. Previous use</td>
<td>.327&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.151</td>
<td>.108</td>
<td>.169</td>
</tr>
</tbody>
</table>

Note. <sup>a</sup> Likelihood to keep and use progress monitoring data. <sup>b</sup> Autism Spectrum Disorder. <sup>c</sup> Teacher Efficacy in Classroom Management and Discipline. <sup>*</sup><i>p</i> < .05. <sup>**</sup><i>p</i> < .01.
Table 3-8. Correlations between BIRS and PDATA, by treatment group

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Stories</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Acceptability</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Effectiveness</td>
<td>.785**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Timeliness of effect</td>
<td>.653**</td>
<td>.815**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>4. PDATA(^a)</td>
<td>.591**</td>
<td>.554**</td>
<td>.557*</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Self-Management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Acceptability</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Effectiveness</td>
<td>.767**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Timeliness of effect</td>
<td>.699**</td>
<td>.832**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>4. PDATA(^a)</td>
<td>.561**</td>
<td>.449**</td>
<td>.404*</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Timeout</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Acceptability</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Effectiveness</td>
<td>.804**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Timeliness of effect</td>
<td>.803**</td>
<td>.870**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>4. PDATA(^a)</td>
<td>.422**</td>
<td>.381**</td>
<td>.358*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note.* \(^a\) Likelihood to keep and use progress monitoring data. *p < .05. **p < .01.

Table 3-9. Results of the one-way analysis of variance (ANOVA), with acceptability, effectiveness and timeliness of effect as dependent variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>Social Stories</th>
<th>Self-Management</th>
<th>Timeout</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Acceptability</td>
<td>16.93**</td>
<td>71.81</td>
<td>12.03</td>
<td>64.19</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>18.12**</td>
<td>27.48</td>
<td>6.05</td>
<td>25.83</td>
</tr>
<tr>
<td>Time of Effect</td>
<td>8.48**</td>
<td>7.67</td>
<td>2.09</td>
<td>7.29</td>
</tr>
</tbody>
</table>

*Note.* *p < .05. **p < .01.

Table 3-10. Pairwise comparisons of treatment groups for acceptability

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Stories vs. Self-Management</td>
<td>4.15</td>
<td>0.00**</td>
</tr>
<tr>
<td>Social Stories vs. Timeout</td>
<td>5.28</td>
<td>0.00**</td>
</tr>
<tr>
<td>Self-Management vs. Timeout</td>
<td>2.07</td>
<td>0.04*</td>
</tr>
</tbody>
</table>

*Note.* *p < .05. **p < .01.

Table 3-11. Pairwise comparisons of treatment groups for effectiveness

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Stories vs. Self-Management</td>
<td>1.77</td>
<td>0.08</td>
</tr>
<tr>
<td>Social Stories vs. Timeout</td>
<td>5.53</td>
<td>0.00**</td>
</tr>
<tr>
<td>Self-Management vs. Timeout</td>
<td>4.04</td>
<td>0.00**</td>
</tr>
</tbody>
</table>

*Note.* *p < .05. **p < .01.
Table 3-12. Pairwise comparisons of treatment groups for timeliness of effect

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Stories vs. Self-Management</td>
<td>1.15</td>
<td>0.25</td>
</tr>
<tr>
<td>Social Stories vs. Timeout</td>
<td>4.02</td>
<td>0.00**</td>
</tr>
<tr>
<td>Self-Management vs. Timeout</td>
<td>2.83</td>
<td>0.00**</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01.

Table 3-13. Two-way interactions from the one-way analysis of covariance (ANCOVA), where teacher variables served as covariates, group type as the fixed factor, and acceptability as the dependent variable

<table>
<thead>
<tr>
<th>Interaction</th>
<th>df1</th>
<th>df2</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment * Number of Students</td>
<td>2</td>
<td>226</td>
<td>0.60</td>
<td>0.55</td>
</tr>
<tr>
<td>Treatment * Grade Taught</td>
<td>2</td>
<td>226</td>
<td>1.28</td>
<td>0.28</td>
</tr>
<tr>
<td>Treatment * Years of Experience</td>
<td>2</td>
<td>226</td>
<td>0.45</td>
<td>0.64</td>
</tr>
<tr>
<td>Treatment * Number of Students with ASD(^a)</td>
<td>2</td>
<td>226</td>
<td>0.71</td>
<td>0.49</td>
</tr>
<tr>
<td>Treatment * Teacher Age</td>
<td>2</td>
<td>226</td>
<td>0.05</td>
<td>0.95</td>
</tr>
<tr>
<td>Treatment * TECMD(^b)</td>
<td>2</td>
<td>226</td>
<td>0.67</td>
<td>0.51</td>
</tr>
<tr>
<td>Treatment * Previous Use</td>
<td>2</td>
<td>226</td>
<td>5.44</td>
<td>0.005**</td>
</tr>
</tbody>
</table>

Note. \(^a\) Autism Spectrum Disorder. \(^b\) Teacher Efficacy in Classroom Management and Discipline. *p < .05. **p < .01.

Table 3-14. Teacher variable parameter estimates from the one-way ANCOVA when only main effects and the two-way interaction between intervention type and previous use were included

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>(\beta)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>0.07</td>
<td>0.04</td>
<td>0.66</td>
<td>0.51</td>
</tr>
<tr>
<td>Grade Taught</td>
<td>-0.08</td>
<td>-0.01</td>
<td>-0.18</td>
<td>0.86</td>
</tr>
<tr>
<td>Years of Experience</td>
<td>-0.39</td>
<td>-0.25</td>
<td>-2.86</td>
<td>0.00**</td>
</tr>
<tr>
<td>Number of Students with ASD(^a)</td>
<td>-0.10</td>
<td>-0.15</td>
<td>-2.57</td>
<td>0.01*</td>
</tr>
<tr>
<td>Teacher Age</td>
<td>0.21</td>
<td>0.16</td>
<td>1.86</td>
<td>0.06</td>
</tr>
<tr>
<td>TECMD(^b)</td>
<td>-0.00</td>
<td>-0.00</td>
<td>-0.01</td>
<td>0.99</td>
</tr>
</tbody>
</table>

Note. \(^a\) Autism Spectrum Disorder. \(^b\) Teacher Efficacy in Classroom Management and Discipline. *p < .05. **p < .01.

Table 3-15. Treatment and previous use interaction from the one-way ANCOVA when only main effects and the two-way interaction between intervention type and previous use were included

<table>
<thead>
<tr>
<th>Variable</th>
<th>df1</th>
<th>df2</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
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<td>226</td>
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<td>&lt;.000**</td>
</tr>
<tr>
<td>Previous Use</td>
<td>1</td>
<td>226</td>
<td>15.22</td>
<td>0.0001**</td>
</tr>
<tr>
<td>Treatment * Previous Use</td>
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<td>226</td>
<td>4.62</td>
<td>0.01*</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01.
Table 3-16. Adjusted and marginal means of previous use by treatment

<table>
<thead>
<tr>
<th>Previous Use</th>
<th>Social Stories Adj M</th>
<th>Self-Management Adj M</th>
<th>Timeout Adj M</th>
<th>Previous Use Marginal M</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>68.3</td>
<td>63.6</td>
<td>51.1</td>
<td>61.0</td>
</tr>
<tr>
<td>Yes</td>
<td>76.1</td>
<td>63.3</td>
<td>64.0</td>
<td>67.8</td>
</tr>
<tr>
<td>Treatment Marginal M</td>
<td>72.2</td>
<td>63.4</td>
<td>57.5</td>
<td></td>
</tr>
</tbody>
</table>

Table 3-17. Pairwise comparisons of treatment groups for no previous use and previous use

<table>
<thead>
<tr>
<th>Previous Use</th>
<th>S.S. vs. S.M. t</th>
<th>p</th>
<th>S.S. vs. T.O. t</th>
<th>p</th>
<th>S.M. vs. T.O. t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1.69</td>
<td>0.09</td>
<td>5.32</td>
<td>&lt;.0001**</td>
<td>3.69</td>
<td>&lt;.0001**</td>
</tr>
<tr>
<td>Yes</td>
<td>4.18</td>
<td>&lt;.0001*</td>
<td>4.27</td>
<td>&lt;.0001**</td>
<td>-0.23</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Note. S.S. = social stories; S.M. = self-management; T.O. = timeout. *p < .05. **p < .01.

Table 3-18. Pairwise comparisons of no previous use and previous use by treatment group

<table>
<thead>
<tr>
<th>Previous Use</th>
<th>Social Stories t</th>
<th>p</th>
<th>Self-Management t</th>
<th>p</th>
<th>Timeout t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>No vs. Yes</td>
<td>2.68</td>
<td>0.01*</td>
<td>-0.09</td>
<td>0.93</td>
<td>3.97</td>
<td>&lt;.0001**</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01.
Table 3-19. Ordinal regression summary examining the influence of treatment type on the likelihood to keep and use progress monitoring data (dependent variable)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Wald</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDATA(^a) = 1</td>
<td>-2.87</td>
<td>0.39</td>
<td>55.45</td>
<td>0.00</td>
</tr>
<tr>
<td>PDATA(^a) = 2</td>
<td>-1.38</td>
<td>0.24</td>
<td>32.56</td>
<td>0.00</td>
</tr>
<tr>
<td>PDATA(^a) = 3</td>
<td>-0.898</td>
<td>0.22</td>
<td>16.12</td>
<td>0.00</td>
</tr>
<tr>
<td>PDATA(^a) = 4</td>
<td>0.505</td>
<td>0.22</td>
<td>5.45</td>
<td>0.02</td>
</tr>
<tr>
<td>PDATA(^a) = 5</td>
<td>2.27</td>
<td>0.26</td>
<td>75.22</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Social stories = 1</td>
<td>0.89</td>
<td>0.29</td>
<td>9.41</td>
<td>0.00**</td>
</tr>
<tr>
<td>Self-management = 2</td>
<td>0.75</td>
<td>0.29</td>
<td>6.63</td>
<td>0.01*</td>
</tr>
<tr>
<td>Timeout = 3</td>
<td>0.00</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>

| Note. | \(^a\) Likelihood to keep and use progress monitoring data. *p < .05. **p < .01. |

Table 3-20. Two-way interactions from the ordinal regression when all main effects and interactions between treatment group and BIRS outcome variables were included in the model

<table>
<thead>
<tr>
<th>Interaction</th>
<th>(\chi^2)</th>
<th>p</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptability(^\ast)Treatment Group</td>
<td>0.94</td>
<td>0.62</td>
<td>2</td>
</tr>
<tr>
<td>Effectiveness(^\ast)Treatment Group</td>
<td>0.28</td>
<td>0.87</td>
<td>2</td>
</tr>
<tr>
<td>Timeliness(^\ast)Treatment Group</td>
<td>2.17</td>
<td>0.34</td>
<td>2</td>
</tr>
</tbody>
</table>

Note. \(^\ast\)p < .05. **p < .01.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Wald</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDATA(^a) = 1</td>
<td>1.21</td>
<td>0.62</td>
<td>3.82</td>
<td>0.05</td>
</tr>
<tr>
<td>PDATA(^a) = 2</td>
<td>3.01</td>
<td>0.59</td>
<td>25.74</td>
<td>0.00</td>
</tr>
<tr>
<td>PDATA(^a) = 3</td>
<td>3.67</td>
<td>0.61</td>
<td>36.40</td>
<td>0.00</td>
</tr>
<tr>
<td>PDATA(^a) = 4</td>
<td>5.40</td>
<td>0.67</td>
<td>65.89</td>
<td>0.00</td>
</tr>
<tr>
<td>PDATA(^a) = 5</td>
<td>7.39</td>
<td>0.72</td>
<td>105.62</td>
<td>0.00</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social stories = 1</td>
<td>0.15</td>
<td>0.31</td>
<td>0.23</td>
<td>0.64</td>
</tr>
<tr>
<td>Self-Man = 2</td>
<td>0.44</td>
<td>0.31</td>
<td>2.05</td>
<td>0.15</td>
</tr>
<tr>
<td>Timeout = 3</td>
<td>0.00</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Acceptability</td>
<td>0.06</td>
<td>0.02</td>
<td>17.43</td>
<td>0.00(^<em>)</em></td>
</tr>
<tr>
<td>Effectiveness</td>
<td>0.01</td>
<td>0.04</td>
<td>0.13</td>
<td>0.72</td>
</tr>
<tr>
<td>Timeliness of Effect</td>
<td>0.10</td>
<td>0.11</td>
<td>0.85</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Note. \(^a\) Likelihood to keep and use progress monitoring data. \(^*\)p < .05. \(^*\)*p < .01.
Figure 3-1. Acceptability by level of treatment

Figure 3-2. Acceptability by level of previous use
The primary purpose of this study was to build on the current literature by examining teachers’ perceptions of three interventions (i.e., social stories, self-management, timeout) for children with autism spectrum disorders (ASD). To date, only three research studies were identified that examined and/or compared raters’ acceptability of multiple treatments for children with ASD (Frederick, 2002; Fragioudakis, 2009; Brubaker et al., 2010). Also, it is common practice within the acceptability literature to compare reinforcement versus punishment techniques (Carter, 2007); this study is the first to make this comparison in the context of interventions for ASD.

Additionally, no studies in the area of ASD treatment acceptability were identified that examined the influence of teacher characteristics. This study sought to contribute to the literature by examining the following teacher characteristics: years of experience, age, grade taught, class size, previous contact with students with ASD, previous intervention use, and teacher efficacy in classroom management and discipline (TECMD). Much of the available research on these variables is limited, mixed, or both, and until now, teacher efficacy in classroom management and discipline had never been examined as it relates to treatment acceptability.

The second purpose of this study was to examine teachers’ likelihood of collecting and using data to monitor the specified social skills interventions, and whether their likelihood differed based on treatment type. Also under investigation was the influence of teachers’ perceptions of treatment acceptability, effectiveness, and timeliness on their likelihood of collecting and using progress monitoring data. The
present chapter provides a summary of relevant findings for each research question. This chapter also examines the limitations of the study and offers implications for practice and recommendations for future research.

**Research Question 1**

The first aim of this study was to examine differences in teachers' perceptions of acceptability for three interventions for children with ASD – social stories, self-management, and timeout. Examining differences in teachers' acceptability is important because when teachers believe that the intervention addresses an important problem with acceptable procedures, they are more likely to use the intervention (Kazdin, 1980).

Because perceptions about effectiveness and timeliness of effect have both been found to influence acceptability ratings (Elliott & Von Brock Treuting, 1991), these variables were also measured. This was done to provide supplementary findings that could perhaps better aid our understanding about why teachers find some interventions more acceptable than others. Additionally, measuring perceptions of effectiveness provides us with another dimension with which we can evaluate subjective judgments concerning treatments (Elliott & Von Brock Treuting, 1991).

Data for this analysis were obtained from the Behavior Intervention Rating Scale (BIRS; Elliott & Von Brock Treuting, 1991). The Shaffer-Holm procedure was used to compare teachers’ perceptions of acceptability, effectiveness, and timeliness of effect based on the intervention type. Teachers found both of the positive interventions (i.e., social stories and self-management strategy) more acceptable than the reductive strategy (i.e., timeout). These findings are consistent with previous research (Kazdin, 1980; Kutsick et al., 1991; Power, Hess, & Bennett, 1985; Witt, Elliott, & Martens, 1984; Witt & Robbins, 1985) that also found positive strategies were rated as more acceptable.
than reductive/punitive strategies for behavior problems. When comparing the acceptability of social stories and self-management, teachers rated social stories with higher acceptability than the self-management strategy.

Notably, although the positive interventions received higher mean ratings on acceptability, timeout was still rated in the acceptable range (52.5 and higher; Von Brock and Elliott, 1987). This finding suggests that teachers may still find timeout as an acceptable procedure for eliminating a target behavior. However, it may not be preferred over other interventions that are intended for building skills, rather than reducing behaviors.

Teachers also perceived both positive interventions as more effective and timely to produce an effect than timeout. Because the positive interventions were both perceived with higher acceptability, and because the BIRS outcome variables were found to have a moderate to high positive correlation, these findings would be expected. Interestingly, although teachers perceived social stories to be more acceptable than the self-management strategy, there were no significant differences regarding their perceptions of effectiveness and timeliness of effect. Although it was not an intentional goal for this study, these findings highlight the importance of assessing acceptability and effectiveness as separate constructs. The practice of integrating these two constructs has historically been a major empirical problem for this area of study (Rosenfield, 1979; Witt & Elliot, 1985). A few studies have attempted to examine the constructs separately, and results have supported the importance for doing so. For instance, Shapiro and Goldberg (1986) found that three treatments for improving spelling skills were viewed equally as effective, but differences in acceptability were
noted. Similarly, Piesco, Huzinec, and Curtis (2001) examined teachers’ perceptions of a daily report card and medication for students with attention-deficit/hyperactivity disorder (ADHD) using the BIRS. They found that although teachers perceived both treatments equally as effective and quick to produce a change, the daily report card was rated as more acceptable than the medication treatment. The findings of the present study are consistent with these previous studies in that teachers viewed social stories and self-management equally as effective, but they viewed social stories with higher acceptability. Piesco et al. (2001) propose that findings such as these demonstrate that perceived effectiveness may not be the sole criterion for treatment acceptability; therefore, they should be assessed as separate dimensions.

**Research Question 2**

The second aim of this study was to determine whether treatment effects on acceptability are influenced by teacher variables. Several studies have examined how acceptability scores are influenced by various teacher characteristics, including gender, attribution beliefs, knowledge of the disorder, knowledge of behavioral principles, years of experience, grade taught, geographical location, and self-efficacy (Girio & Owens, 2009; Kazdin, 1980; Lackey, 2006; Rasnake et al., 1993; Stinnet et al., 2001; Stinson, 2009; Vereb & DiPerna, 2004; Witt & Robbins, 1985). Because teachers are the primary customers of classroom interventions, it is important that the variables relevant to their treatment selection and implementation stage are understood (Elliott, 1988).

In this study, seven teacher variables were under investigation: teacher age, years of experience, class size, grade taught, previous use of the intervention, number of students previously taught with ASD, and efficacy in classroom management and
discipline. The first six variables were collected through a demographic questionnaire. The last variable, teacher efficacy in classroom management and discipline, was assessed using the TECMD (Emmer & Hickman, 1991). One-way ANCOVAs (analysis of covariance) were used to examine the main effects and two-way interactions of the teacher variables on acceptability for the three interventions. Number of students taught with ASD (previous professional contact) and years of experience had a significant influence on teachers’ perceptions of acceptability for the three interventions. An interaction between previous use and intervention type was also found. These findings are further discussed below.

**Previous Professional Contact**

Previous research examining the influence of professional contact on treatment acceptability could only be found in the area of attention-deficit/hyperactivity disorder (ADHD; Vereb & DiPerna, 2004; Girio & Owens, 2009). No relationship was established between previous professional contact with students with ADHD and acceptability scores of behavior management strategies, but a positive relationship was identified between previous professional contact and teachers’ acceptability of medication (Vereb & DiPerna, 2004). The present study sought to expand the research base by exploring the influence of teachers’ previous professional contact with students who have ASD on treatment acceptability.

The findings from this study are the first to demonstrate a significant relationship between previous professional contact and treatment acceptability of behavior management strategies. Specifically, findings indicate that the number of students with ASD previously taught significantly influences treatment acceptability scores. The relationship appears to be in the negative direction. Because of the different nature of
the positive interventions and the mildly reductive timeout strategy, it is beneficial to consider these findings separately.

Positive interventions and previous professional contact

It was surprising that teachers with more previous professional contact found the positive interventions less acceptable than teachers with less previous professional contact, as social stories and self-management both have demonstrated effectiveness for students with ASD (Sansosti, 2010; Scattone, 2007). Although the reason for these findings is unknown, one hypothesis is that teachers with more professional contact have had limited success with these interventions. Another hypothesis is that teachers who have more experience with autism have found other interventions that are more suitable or effective. Research is warranted to explore the reasoning behind these surprising findings.

Reductive interventions and professional contact

It is perhaps a promising finding that teachers with more previous professional contact with students who have ASD perceive the timeout intervention with lower acceptability. Timeout procedures are frequently overused by teachers, even when they are ineffective in changing the student’s behavior (Ryan, Peterson, & Rozalski, 2007). In some cases, students may inadvertently be reinforced by being removed from a classroom setting which s/he finds aversive. In the case of students with ASD, being removed from social settings may be reinforcing, making the timeout procedure of little use. Although speculative, perhaps teachers with more professional contact have had little success with the timeout procedure or have found more positive alternatives to promote desired behaviors.
Years of Experience

Years of experience was also found to significantly influence teachers’ perceptions of acceptability for the three interventions. The relationship appeared to be negative. Findings are consistent with two other studies (Witt & Robbins, 1985; Witt, Moe, Gutkin, & Andrews, 1984) that also found less experienced teachers endorsed higher acceptability ratings for behavior interventions than more experienced teachers. For instance, in the study by Witt and Robbins (1985), teachers with more experience rated both positive and negative interventions as less acceptable than did teachers with less professional teaching experience.

There are a couple of potential reasons for these findings. One hypothesis is that newer teachers experience less burnout than older teachers and are more willing or eager to experiment with new behavior strategies. Another hypothesis is that teachers with more experience may have had little success with these interventions or have found interventions that are more suitable throughout the course of their career.

Conversely, Girio and Owens (2009) found that years of teaching experience was a positive predictor for a timeout intervention for a student with ADHD. Specifically, timeout was rated with higher acceptability than peer tutoring by teachers with more experience. The authors speculated that more experienced teachers are more comfortable using reductive interventions or have more evidence for their effectiveness than less experienced teachers. The difference in focus (ASD vs. ADHD) or methodologies is one possible explanation why Girio and Owens’ findings contradict the findings from the present study regarding the relationship between years of experience and acceptability of timeout.
Previous Use

Previous use of an intervention also influenced acceptability ratings, although the effect was not reliable across treatments. Specifically, when teachers had never used the intervention, the timeout intervention was rated with lower acceptability than social stories and self-management. A possible explanation is that teachers who indicated they had never previously used timeout may also find it unacceptable, and therefore are unwilling to use it. Considering that the use of timeout has been a source of rising controversy (Ryan, Peterson, & Rozalski, 2007), this particular finding may not be surprising. Of greater interest to this study is the finding that among teachers who had previous use of the intervention, social stories were rated with higher acceptability than self-management and timeout. One hypothesis for this finding is that teachers who had previously used social stories experienced greater success with the intervention than teachers who had previously used self-management and timeout.

Additionally, pairwise comparisons were made of no previous use versus previous use for each treatment group. Means for no previous use and previous use were significantly different for social stories and timeout. Specifically, a teacher’s previous use of social stories and timeout predicts higher acceptability ratings of the respective interventions. These findings are similar to Sterling-Turner and Watson’s (2002) study that found acceptability ratings increased after participants’ use of an intervention. One hypothesis is that by using the intervention, teachers become more familiar and comfortable with the procedures, resulting in higher acceptability of the treatment. These findings can also be explained in light of Witt and Elliott’s (1985) model of treatment acceptability. They hypothesized that treatment acceptability, treatment use, treatment integrity, and treatment effectiveness are interrelated, and their
relationships are sequential and reciprocal (Witt and Elliott, 1985; see Figure 1-1). For instance, use of the treatment increases treatment integrity, leading to increased effectiveness, resulting in higher acceptability. Findings from this study lend support for this model.

It is surprising that use of self-management did not result in higher treatment acceptability. In fact, a close examination of the adjusted means shows that acceptability was actually slightly lower among teachers who had previously used self-management. More research is needed to further explore why previous use predicts higher acceptability for some interventions, but not for others.

**Research Question 3**

The third aim of this study was to determine whether teachers’ likelihood to keep and use progress monitoring data differed based on the intervention being implemented. After reading the vignette, teachers were asked to indicate on a Likert scale their likelihood of collecting and using progress monitoring data for the proposed intervention. Because there were only six response options (from “very unlikely” to “very likely”), ordinal regression was used. Teachers indicated that they were more likely to keep and use progress monitoring data for the positive interventions than for the timeout procedure. Teachers were equally as likely to keep and use progress monitoring data for social stories and self-management interventions. To date, no studies have examined teachers’ willingness to keep and use progress monitoring data for behavior interventions. Therefore, only speculations about these findings can be made. Because timeout has been a source of rising controversy (Ryan, Peterson, & Rozalski, 2007), perhaps teachers who use timeout choose to not keep data that documents their use. Also, with the passage of the Individuals with Disability Education Act (1997), there has
been an increased emphasis on incorporating positive behavior supports into policy and practice within the educational system and classrooms (Suagi & Horner, 2002). If teachers feel pressure from policy makers, administrators, or parents to use positive interventions with students who demonstrate behavioral difficulties, teachers may be more likely to collect data on positive interventions to demonstrate their practices are in compliance with national and state mandates, as well as school policies.

**Research Question 4**

The fourth purpose of this study was to examine the influence of perceptions of acceptability, effectiveness, and timeliness of effect on their likelihood to keep and use progress monitoring data. Ordinal regression was used. Acceptability demonstrated to be significant, and there were no significant differences among the treatments when teachers’ acceptability of the intervention was included in the model. This implies that acceptability mediates the effect of treatment on willingness to keep and use progress monitoring data. One hypothesis for this finding is that when treatments are viewed as appropriate, fair, and reasonable (see Kazdin, 1981), teachers may give more effort to ensure that the treatment is effective and that it produces the desired outcomes. Another hypothesis can be explained using the treatment acceptability model proposed by Reimers et al. (1987). According to this model, high acceptability leads to high compliance. If progress monitoring is an important part of the specified procedures of the intervention (perhaps in schools that emphasize the use of data for decision-making purpose), then it is possible that acceptability leads to the use of progress monitoring data and other procedures that are in compliance with the intervention.

Interestingly, teachers’ perceptions of effectiveness and timeliness of effect did not influence their likelihood to keep and use progress monitoring data. There are a few
possible reasons for these findings. First, teachers may be willing to keep progress monitoring data for interventions of which they are unsure of their effectiveness or timeliness. However, due to the nature of the BIRS, teachers have to indicate whether they think the intervention will be effective or timely. They are not able to indicate uncertainty, so these results would not be shown. Another potential reason is that teachers do not consider time as a factor when making the decision on whether to collect progress monitoring data. An intervention that produces quick results might require less data (which might be more favorable to teachers), but an intervention that is slow to produce results may benefit more by monitoring slight changes in outcomes over time. There are benefits for collecting and using progress monitoring data for interventions which produce quick and slow results. Therefore, teachers may be willing to collect and use data regardless of their perceptions about the intervention’s timeliness of effect.

**Limitations**

Like all studies, this study has several limitations. First, the sample was comprised of teachers in three states, which may limit the ability to generalize findings to other regions in the United States. Also, Florida was largely overrepresented (n = 208, 87.8%) when compared to representation from Missouri and Iowa. Similar to many other studies in education, there may be a gender bias, as teachers in the sample were primarily females - of the 238 participants, 226 were female. Another limitation is that only K-6 teachers were included in the sample. This was done in order to focus participant recruitment efforts, but it limits the ability to generalize findings to the entire school population. Preliminary group comparisons indicated that the self-management group had a greater proportion of less experienced teachers than the social story and
timeout groups. This may be an important consideration when examining the self-management group findings.

Another limitation is that after the email was sent to the teachers, the researcher had no control over who participated. For instance, although the study was originally intended for general education teachers only, it became apparent that other school personnel in teaching roles also participated. This was evident by the number of students some teachers indicated that they had in their classrooms (e.g., one or two students). Also, a couple of teachers indicated they had taught over 100 students (as many as 300) with ASD during their career. Although possible, it is unlikely that a teacher in a general education setting would have taught this many students with ASD. Based on these considerations, this study was expanded to include all teachers, not just general education teachers.

Another limitation is that vignettes were used to describe the child’s behavior and treatment intervention. Although using vignettes is a standard practice within the research acceptability research (Lackey, 2006), it still comes with limitations. Teachers are not provided the actual experience of implementing the specified intervention and may not be fully aware of all the benefits and challenges the intervention might present in a real life setting. Also, their self-ratings on their likelihood of collecting and using progress monitoring data must be interpreted with caution. Their actual practice may differ from what they indicate in their response.

The online survey also presents limitations. Respondents were required to complete the survey in one sitting, and they were not able to change their responses after they proceeded to the next page. Therefore, it is possible that after reading about
the child and treatment, they forgot important aspects while completing the BIRS. Also, as with any survey, there remains a degree of uncertainty as to whether respondents answered questions thoughtfully and accurately. Finally, teachers who were more interested in this area of research, or who are more willing to participate and seek additional experiences, might have been more likely to participate, resulting in a potential volunteer bias.

**Implications for Practice and Recommendations for Future Research**

Findings from this study can be used to better inform practice in the fields of consultation and professional development. Additionally, future research is needed in order to further explore several unanswered questions that remain related to the areas of ASD and treatment acceptability, teacher variables, and progress monitoring. This section outlines implications for practice and research for each of these areas.

**Treatment Acceptability**

Kazdin (1977) and Wolf (1978) stated that it is not sufficient enough for behavioral procedures to be effective; they must also be accepted by the individuals with whom they are being implemented. Wolf (1978) further stated, "If the participants don't like the treatment, then they may avoid it, or run away, or complain loudly. And thus, society will be less likely to use our technology, no matter how potentially effective and efficient it might be" (p. 206). Therefore, considerations must be given to not only developing effective interventions, but also interventions that are seen as appropriate, fair, and reasonable by the consumer.

This study sought to expand the literature base by comparing teachers’ acceptability of three interventions (two positive, one negative) for students with ASD. Results indicated that teachers rated social stories with the highest acceptability for
students with ASD, followed by the self-management strategy. The timeout procedure was found least acceptable. Teachers also perceived social stories and the self-management strategy to be equally as effective and timely to produce an effect, and both were rated higher on these dimensions than the timeout procedure. Findings such as these are important for school psychologists, who often consult with teachers about behavior interventions in their classrooms. Data from this study should encourage school psychologists to choose an appropriate plan for the student, while considering teachers' perceptions about acceptability, effectiveness, and timeliness. Future acceptability research should encompass other interventions for students with ASD (e.g., pivotal response training, video modeling, written scripts). Additionally, research should examine variables that may cause teachers to be more accepting of some interventions than others.

An additional implication from the findings is the importance of assessing acceptability and effectiveness as separate constructs. This study found that social stories had higher acceptability than self-management, but both interventions were perceived as equally effective. These findings are in line with previous studies (Piesco, Huzinec, & Curtis, 2001; Shapiro & Goldberg, 1986) and support the importance of assessing these constructs separately in future research.

**Teacher Variables**

This study provides data to support findings from previous research that teachers with less experience have higher acceptability of interventions than teachers with more experience (Witt, Moe, Gutkin, & Andrews, 1984; Witt & Robbins, 1985). Additionally, this study provides preliminary findings that previous professional contact with students who have ASD negatively influences teachers' acceptability of behavioral interventions.
School administrators and school psychologists may want to consider a teacher’s previous experiences for purposes of professional development. For instance, teachers who have been in the field longer may be not as familiar with newer behavioral techniques such as social stories, which were introduced less than 20 years ago (Gray & Garand, 1993), and may benefit from additional in-services or training experiences. Teachers who are newer to the field may have been introduced to these techniques during their pre-service educational experiences. If career burnout is preventing more experienced teachers from wanting to implement behavior interventions for their students, administrators may want to provide additional support to these teachers.

Years of experience and previous professional contact might also be important considerations for school psychologists with consultant roles. For instance, consultants could potentially be faced with more resistance from more experienced teachers if these teachers find interventions less acceptable. Consultants may need to provide additional support to help more experienced teachers find and implement intervention procedures that they find acceptable for their classroom. On the flip side, findings from this study indicate that less experienced teachers find timeout as a more acceptable treatment for ASD than do more experienced teachers. In cases such as this, consultants may seek to help less experienced teachers find positive behavioral intervention alternatives for students with ASD.

Previous use influenced the treatment effect on acceptability scores for social stories versus self-management and timeout. Additionally, teachers who had previously used social stories and timeout had higher ratings of acceptability for their respective interventions than did teachers who had no previous use. These findings are important
for school psychologists, who might want to consider a teacher’s familiarity and experience with a particular intervention. For instance, teachers with less experience implementing specific interventions may benefit from greater levels of support before and during intervention implementation. Future research could examine other variables related to treatment acceptability in the area of autism, including variables related to teachers and parents (e.g., age, knowledge, beliefs), the child (e.g., severity, gender), and the treatment (e.g., time required, effectiveness information).

**Progress Monitoring**

Another interesting finding yielded from this study is that teachers are more likely to keep and use progress monitoring data for some interventions than others; specifically, teachers were more likely to keep and use data for social stories and the self-management strategy than they were for timeout. Additionally, teachers’ acceptability of the intervention was found to predict their likelihood of keeping and using progress monitoring data.

Data is an essential component for determining if a behavioral strategy is effective for a student. The passage of the Individuals with Disabilities Act (IDEA) has brought increased attention to the issue of data and progress monitoring in schools. For instance, although not a new concept, functional behavior assessment (FBA) was introduced by IDEA as a way to help support students with disabilities (Sugai et al., 2000). FBA can be defined as a “systematic process of identifying behaviors and the events that (a) reliably predict occurrences and nonoccurrences of those behaviors and (b) maintain the behaviors across time” (p. 137). The information gathered from an FBA can help improve the effectiveness, relevance, and efficiency of a behavior support plan. An important step of any FBA is collecting data on effectiveness and efficiency of
a behavior plan and redesigning the intervention based on evaluation information (Sugai et al., 2000).

Progress monitoring data is also important for schools operating under a response to intervention (RtI) framework. The Individuals with Disability Education Improvement Act of 2004 (IDEIA) brought increased attention to RtI principles, although the model was not new to the field of special education (Sugai, 2011). RtI is a multi-tiered intervention-prevention model in which all students receive successive levels of support dependent on their needs and their response to intervention. Although RtI efforts are largely focused on academic practices, applications of the RtI framework are also represented in School-wide Positive Behavior Support (SWPBS) practices and systems (Sugai et al., 2000). An important feature of SWPBS and RTI is the emphasis on prevention that occurs on three levels: primary (all students, all settings), secondary (at-risk students), and tertiary tier prevention (individual students). Student progress must be constantly monitored to inform intervention (Hawken, Vincent, & Schumann, 2008), and data-based decisions are encouraged so that more effective alternatives and additional support can be provided to students who do not respond to interventions.

The findings of this study may have implications for schools that use FBAs and/or operate under an RtI framework. For instance, school psychologists might encourage teachers to implement interventions they find acceptable so they may be more likely and willing to collect and use progress monitoring data. The data can be utilized to modify treatment plans and better inform decisions to improve student outcomes. Future research should investigate other variables that promote teachers to collect and use progress monitoring data.
APPENDIX A
SURVEY MATERIALS

Informed Consent

Directions: Please read carefully. If you agree to participate, please type your name and date at the bottom. If not, please close out of the survey. You are encouraged to print off a copy of this page for your own records.

Protocol Title: Social Skills Interventions for Children with Autism Spectrum Disorders: Teachers' Acceptability and Likelihood to Keep Progress Monitoring Data

Please read this consent document carefully before you decide to participate in this study.

Purpose of the research study:

The purpose of this study is to examine teachers' perceptions of acceptability of social skills interventions for students with autism spectrum disorders. Another purpose is to examine teachers' likelihood for keeping and using progress monitoring data for the specified intervention.

What you will be asked to do in the study:

If you consent to participate, you will first be directed to a short demographic form and asked to answer questions about yourself. You will then be asked to answer questions regarding your perceptions about your own efficacy in classroom management and discipline. A brief vignette describing a student with autism spectrum disorder and a potential intervention will be presented. You will then be asked to answer questions about your perceptions of the intervention, previous experience with the intervention, and likelihood to keep progress monitoring data. You will then be presented with two other short treatment descriptions and asked if you have previously used them in your classroom, and your likelihood to keep progress monitoring data.

Time required: 5-10 Minutes

Risks and Benefits:

There is no more than minimal risk for participation in this study. There are no known benefits to the participants.

Compensation:

You will not be compensated for your participation.
Confidentiality: Your identity will remain anonymous as you are not to provide any personally identifiable information (e.g., name, student ID #) anywhere on the questionnaire. All of your responses will be kept confidential. When the study is completed and the data have been analyzed, your answers will be destroyed. Your individual answers will not be used in any report, scientific meetings, institutional policies, or published materials that may result from this research.

Data Security: Surveygizmo will be used to collect data. Surveygizmo holds all information in strict confidence and prevents the collection of personally identifiable information that could be used to identify your answers. Your responses will be password protected and your IP addresses will be masked from the researcher.

Voluntary participation:

Your participation in this study is completely voluntary. There is no penalty for not participating. If you choose to not participate, please close the browser window.

Right to withdraw from the study:

You have the right to withdraw from the study at anytime without consequence. Please close the browser window if you decide to withdraw from the study at any point.

Whom to contact if you have questions about the study:

Susanne Long, Doctoral Student, School Psychology, University of Florida susannelong@ufl.edu or

Dr. John Kranzler, Professor, School of Special Education, School Psychology and Early Childhood Studies, College of Education, University of Florida, PO Box 117047, 186 Norman Hall, Gainesville, FL 32611  352-273-4116  jkranzler@coe.ufl.edu

Whom to contact about your rights as a research participant in the study:

IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; phone 392-0433.

Agreement:

I have read the procedure described above. I voluntarily agree to participate in the procedure and I have been provided the option to print this form for my own records. Clicking this button means that I agree to participate in the study as described, and the program will proceed with the study presentation.

“I agree” (they can click on this button)
Demographics Survey

1. Gender:
   ____ Male
   ____ Female

2. Enter your age: _____

3. Highest degree earned
   ____ Bachelors
   ____ Masters
   ____ Specialist
   ____ Doctorate (PhD, EdD, etc)

4. Race/Ethnicity
   ____ Caucasian
   ____ African American
   ____ Hispanic
   ____ Native-American
   ____ Asian-American
   ____ Other (please specify): ____________________________

5. Enter the number of years you have taught: _____

6. What grade are you currently teaching?
   ____ Kindergarten
   ____ 1st grade
   ____ 2nd grade
   ____ 3rd grade
   ____ 4th grade
   ____ 5th grade
   ____ 6th grade

7. How many students have you taught during your career with autism spectrum disorder (this includes Autism, Aspergers Syndrome, Pervasive Developmental Disorder-Not Otherwise Specified, Rett Syndrome, Childhood Disintegrative Disorder)? __________

8. What state do you work in?

9. What is your class size? _______
TECMD Survey
Classroom Management and Discipline Efficacy Scale
(Only the questions from this particular scale are shown. The question numbers will be removed when presented to participants)

**Directions**

1. Circle the number from 1 (Strongly Disagree) to 6 (Strongly Agree) that best describes your level of agreement with each item.
2. Please complete all items. If an item doesn't seem to apply to you, please do not skip it. Instead, pick the choice that best fits your beliefs.
3. Circle each response clearly.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th></th>
<th></th>
<th></th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.

4. I find it easy to make my expectations clear to students.

5. I know what routines are needed to keep activities running efficiently.

7. I can communicate to students that I am serious about getting appropriate behavior.

9. I know what kinds of rewards to use to keep students involved.

11. There are very few students that I don't know how to handle.

17. I don't always know how to keep track of several activities at once.

18. When I really try, I can get through to most difficult students.
19. I am unsure how to respond to defiant students. | 1 | 2 | 3 | 4 | 5 | 6

23. Sometimes I am not sure what rules are appropriate for my students. | 1 | 2 | 3 | 4 | 5 | 6

26. I can keep a few problem students from ruining an entire class. | 1 | 2 | 3 | 4 | 5 | 6

28. If students stop working in class, I can usually find a way to get them back on track. | 1 | 2 | 3 | 4 | 5 | 6

35. I am confident of my ability to begin the year so that students will learn to behave well. | 1 | 2 | 3 | 4 | 5 | 6

36. I have very effective classroom management skills. | 1 | 2 | 3 | 4 | 5 | 6

Scoring Guide:
Assign scores of 1 to 6 to each item, reversing items 17, 19, 23
The Classroom Management and Discipline Efficacy Scale consists of the sum of the scores on items 2, 4, 5, 7, 9, 11, 17, 18, 19, 23, 26, 28, 35, 36.
Three Vignette Conditions

Read by All Groups:

You have a student in your class with a history of behavioral problems and a diagnosis of autism spectrum disorder (ASD). Although the student performs well academically, s/he has social skill deficits which interfere with the classroom environment. For instance, the student often misreads the nonverbal cues of others, such as not being able to tell when others are upset, bored, or irritated. The student often appears socially awkward, such as talking excessively about one topic and laughing at inappropriate times. The student also shows a lack of empathy for other students. Other examples of problematic behaviors include difficulties taking turns during games and activities, sharing materials and toys, and violating others’ personal space. In addition, the student sometimes makes inappropriate noises when seeking attention, calls other students names when upset, and rarely apologizes for mistakes.

The following is an intervention that is designed to address the student’s social skills.

Read by Respective Treatment Group:

1. **Treatment Condition: Social Stories**

   The use of social stories is a possible intervention to help the child understand a specified social protocol. They are individualized for the child and read to the child prior to a task or situation which the child may find difficult to complete successfully. To make a story, you first identify a difficult situation and target behaviors for the student (for example, playing fairly at recess, appropriately seeking attention when others are talking). The story consists of sentences defining a social setting, what people typically do in that setting, and the perspectives or reactions of others. The story also contains basic pictures to aid the child’s understanding. The stories can be made out of everyday materials such as construction paper or poster board, and crayons or markers. You read the social story to the student each day before the targeted situation, and the story is kept in the student’s view so that s/he may request to read it or have it be read at any time.

2. **Treatment Condition: Self-Management Strategy**

   The use of self-management is a possible intervention in which the child observes and self-records aspects of his or her own behavior. The student will be provided with a paper-and-pencil recording form which includes questions pertaining to the targeted behaviors (for example, “Was I taking turns?” “Was I cooperating with classmates?”). The child will be provided with a timer that will quietly vibrate after a specified time interval. After each interval, the student will
record on the form, and you will sporadically check the form for accuracy. You will hold a brief meeting with the student each day to determine if the behavioral goal was met. If the goal was met, the student may choose from a menu of reinforcers such as stickers, tokens, or other small rewards. If the goal was not met, you may tell the student that he or she can earn the reward during the next day’s session. Before the intervention is implemented, you provide the student an opportunity for practice and feedback.

3. Treatment Condition: Timeout Procedure

The use of timeout is a possible intervention where the child is removed to a designated area in the classroom, away from peers and adults. Upon demonstration of a target behavior(s) and failed attempts to follow verbal warnings, you ask the student to go to the timeout area. You then direct the student to a designated area away from peers. The student is allowed to sit in a chair or stand in the timeout area. Physical restraint is never used on the child. The area is clear of objects and toys that may be viewed as rewarding. Based on the physical arrangement of the setup, the student is not allowed to observe or hear other students for the specified time while in timeout. Once the pre-determined amount of time has passed, the student is allowed to return to the normal classroom activities.
The Behavior Intervention Rating Scale

The purpose of this questionnaire is to obtain information that will aid in the selection of classroom interventions. These interventions will be used by teachers of children with behavior problems. Please circle the number that best describes your agreement or disagreement with each statement using the scale below.

1 = strongly disagree  2 = disagree  3 = slightly disagree  4 = slightly agree  5 = agree  6 = strongly agree

1. This would be an acceptable intervention for the child's problem behavior.

2. Most teachers would find this intervention appropriate for behavior problems in addition to the one described.

3. This intervention should prove effective in changing the child's problem behavior.

4. I would suggest the use of this intervention to other teachers.

5. The child's problem behavior is severe enough to warrant use of this intervention.

6. Most teachers would find this intervention suitable for the behavior problem described.

7. I would be willing to use this intervention in the classroom setting.

8. This intervention would not result in negative side effects for the child.

9. This intervention would be appropriate for a variety of children.

10. This intervention is consistent with those I have used in classroom settings.

11. The intervention was a fair way to handle the child's problem behavior.

12. This intervention is reasonable for the behavior problem described.

13. I liked the procedures used in this intervention.

14. This intervention was a good way to handle this child's behavior problem.
1=strongly disagree 2=disagree 3=slightly disagree 4=slightly agree 5=agree 6=strongly agree

15. Overall, this intervention would be beneficial for the child. 1 2 3 4 5 6
16. The intervention would quickly improve the child’s behavior. 1 2 3 4 5 6
17. The intervention would produce a lasting improvement in the child’s behavior. 1 2 3 4 5 6
18. The intervention would improve the child’s behavior to the point that it would not noticeably deviate from the other classmates’ behavior. 1 2 3 4 5 6
19. Soon after using the intervention, the teacher would notice a positive change in the problem behavior. 1 2 3 4 5 6
20. The child’s behavior will remain at an improved level even after the intervention is discontinued. 1 2 3 4 5 6
21. Using the intervention should not only improve the child’s behavior in the classroom, but also in other settings (e.g., other classrooms, home). 1 2 3 4 5 6
22. When comparing this child with a well-behaved peer before and after use of the intervention, the child’s and the peer’s behavior would be more alike after using the intervention. 1 2 3 4 5 6
23. The intervention should produce enough improvement in the child’s behavior so the behavior no longer is a problem in the classroom. 1 2 3 4 5 6
24. Other behaviors related to the problem behavior also are likely to be improved by the intervention. 1 2 3 4 5 6

Scoring:
Items 1-15: Acceptability
Items 17, 18, & 20-24: Effectiveness
Items 16 & 19: Timeliness of effect
No items are reverse scored
**Previous Use**

Have you ever used this intervention before in your classroom?

___ Yes

___ No

**Progress Monitoring**

How likely are you to keep and use progress data to monitor the effectiveness of this intervention?

1- Very unlikely
2- Unlikely
3- Somewhat unlikely
4- Somewhat likely
5- Likely
6- Very likely
Dear Dr. Elliott,

My name is Susanne Long, and I am a PhD student at the University of Florida in school psychology. I'm in the beginning stages of my dissertation, and I am examining teachers’ acceptability of different interventions for students with autism. I was wondering if I could obtain your permission to use the Behavior Intervention Rating Scale? In addition, I was wondering if you had a complete/most recent copy you could send, as well as any scoring guide? I have your 1991 article, published in the Journal of School Psychology, but I want to make sure this is your most recent version. Please let me know if I can answer any questions for you about my project. Thanks so much. I've truly enjoyed reading your work!

Sincerely,

Susanne

Susanne Long
School Psychology, Doctoral Student
College of Education
The University of Florida

from
Elliott, Stephen N. <steve.elliott@vanderbilt.edu> to
Susanne Long <susannelong@ufl.edu> date
Thu, Jul 15, 2010 at 4:04 PM subject
RE: BIRS Request

Good afternoon Susanne. I wish you well with your work on tx acceptability. I have attached two readings that provide all the details there are for the BIRS, in addition to the article you already have. Onward with you study!

Stephen N. Elliott

Dunn Family Professor of Educational & Psychological Assessment
Director, Center for Assessment & Intervention Research
Vanderbilt University
Peabody #328
230 Appleton Place
Nashville, TN 37203-5721
615.322.2538 (Office)
615.347.5068 (Cell)
Dear Dr. Emmer,
My name is Susanne Long, and I am a PhD student at the University of Florida in school psychology. I'm in the beginning phases of my dissertation proposal, and I was wondering if I could obtain your permission to use your Teacher Efficacy in Classroom Management and Discipline questionnaire for my study? I'm hoping to examine how teachers' efficacy relates to acceptability of various interventions for students with autism. Please let me know if I can provide any more information about my study to help you with your decision regarding permission. I hope you are well.
Sincerely,
Susanne Long

--
Susanne Long
School Psychology, Doctoral Student
College of Education
The University of Florida

From emmer@mail.utexas.edu
to Susanne Long <susannelong@ufl.edu>

date Wed, Jul 21, 2010 at 12:33 PM
subject Re: Permission Request: Teacher Efficacy in Classroom Management and Discipline
signed-bymail.utexas.edu

Yes, you may use the questionnaire. If you would like the scoring key, let me know. I am out of the office for a week or so, but I can reply again when I return.
Ed Emmer
Email to Superintendents/Principals

Dear [Superintendent’s name],

As you are no doubt all too aware, autism is a growing problem in our schools. In recognition of this concern, I am currently in the planning stages of my proposal for my dissertation (University of Florida) which will study elementary teachers’ acceptability of social skills interventions for students with autism. It is critical that we begin to understand these interventions for students with autism, as this population is increasingly becoming integrated into general education classrooms.

For the study, I will be asking elementary teachers to complete a brief online survey that can be accessed from any computer. If you agree to participate, I could send you the template of the email and the link for you to send it out on a list serv. Or, if you prefer, I could ask the principals of the individual elementary schools for their help in sending it out. Participation is completely voluntary, and participants will remain anonymous throughout the process.

The study will likely occur sometime around mid-fall, and I could contact you again at that time with the email and link. Please let me know if you have any questions that I can answer that will help you with this decision. I truly appreciate your help. I hope that the information gained from this research will help guide our future work with children with autism. In addition, I will be happy to share and discuss the results with you at the end of this project.

Best wishes for a successful school year!

Sincerely,
Susanne Long

Email to Teachers

Greetings,

As you are no doubt all too aware, autism is a growing problem in our schools. It is critical that we begin to understand these interventions for students with autism, as this population is increasingly becoming integrated into general education classrooms.

If you have a few moments, I invite you to click on the survey link at the bottom of this page. You will be directed to a more detailed description of this study. The survey will take approximately 5-10 minutes of your time.

I hope that the information gained from this research will help guide our future work with children with autism. I sincerely thank you for your time.

Best wishes for a successful school year!

SURVEY LINK: [INSERT HERE]

Sincerely,

Susanne Long
LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Susanne Long was born in Grinnell, Iowa, in 1984. She grew up mostly in Neosho, Missouri, graduating from Neosho High School in 2003. She earned her Bachelor of Science in psychology at Missouri State University in 2007. She earned her Master of Education in school psychology from the University of Florida in 2008. During her graduate career, Susanne had many unique practicum placements to enhance professional development, including a public school system, a center day school for students with emotional/behavioral disorders, and P.K. Yonge Research and Development school. Susanne’s future plans include completing an internship with Pinellas County Schools, and then obtaining licensure as a psychologist. Her career goals include working in higher education in order to pursue experiences in research and teaching. Her research interests include school-based interventions for autism and attention-deficit/hyperactivity disorder (ADHD), as well as response to intervention (RtI). With her free time, Susanne enjoys traveling, volunteering, and spending time with family and friends.