EVALUATION OF A PACKAGED INTERVENTION FOR TREATING SELECTIVE MUTISM: APPLICATION IN A SCHOOL SETTING

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EVALUATION OF A PACKAGED INTERVENTION FOR TREATING SELECTIVE MUTISM: APPLICATION IN A SCHOOL SETTING

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ABSTRACT

EVALUATION OF A PACKAGED INTERVENTION FOR TREATING SELECTIVE MUTISM: APPLICATION IN A SCHOOL SETTING

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The purpose of the present study was to examine the transportability and acceptability of a school-based modified packaged intervention for treating students with selective mutism in a clinical setting (Bergman, 2013). Despite significant academic and social difficulties that can occur for students with selective mutism (SM), there is little research on evidence-based interventions that can be effectively implemented in schools. This study employed a conjoint behavioral consultation model for treating students with SM in a school setting (Mitchell & Kratochwill, 2013). Participants included three students, 5 to 10 years old, their parents, and school professionals. A multiple baseline across participants experimental design was employed to evaluate gains in vocal and non-vocal behavior as a result of the treatment. Systematic direct observations of communication behaviors served as the primary dependent measure, in addition to
pre/post measures were utilized to measure a change in SM symptoms, functional communication, anxiety, and somatization. In addition to measuring intervention effect, acceptability of the intervention was examined. Results indicated minimal increases in non-vocal behaviors and no gains in vocal behaviors. Overall, high levels of intervention acceptability were demonstrated despite the fact that it was largely ineffective. Implications for practice are discussed, specifically in regards to transporting evidence-based interventions from a clinical to school setting for students with SM.
I dedicate my thesis work to my loving family. A special feeling of gratitude to my husband, James Thomas, without his support this could not have been accomplished. I also dedicate this work to my parents, Tina Haney and Gary Cotton, my brother, Neal Cotton, and my two children, Miles and Sydney.
I am using this opportunity to express my gratitude to everyone who supported me throughout this journey. I am thankful for their aspiring guidance and constructive criticism. I express my thanks to Dr. Elana Bernstein, thesis chair. I could not have done this without her! I would also like to thank thesis committee members, Dr. Susan Davies and Dr. Scott Hall for their support and guidance. I would like to express my appreciation for my colleagues for their willingness to help: Michaela Kramer, Abby Lewis, Denise Gold, and Lisa Lopez. Lastly, I would like to thank the participating school districts for supporting my research.
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CHAPTER I
INTRODUCTION

Selective Mutism (SM) is a childhood disorder characterized by the absence of speech in select environments, for at least one month, despite speaking in other environments (American Psychiatric Association [APA], 2013). Children with SM typically speak freely at home with parents and siblings. However, difficulty with speaking in social situations is a key symptom of children with SM; thus, they are selectively mute in terms of where they speak. With SM the withholding of speech is not due to lack of knowledge of language or experience of trauma, but rather due to anxiety (Bergman, 2013; Cohan, et al., 2008; Shipon-Blum, 2010; Viana, Beidel, & Rabian, 2009). Children with SM may communicate by gesturing or making monosyllabic sounds. This study examined implementation of a packaged behavioral intervention in a school setting with a focus on generalizing speech from therapy to the classroom.

SM is considered a rare disorder, with a prevalence of 0.7 to 2% in early elementary students (Camposano, 2011. The age of onset for children with SM is typically between five to eight years old; however, symptoms may occur prior to school age and remain unnoticed until the child enters school. Once a child enters school, the expectation to speak in public increases. Although SM may be present prior to school entry, this disorder is often not problematic until children begin school and impedes their
academic and social development (Camposano, 2011). Left untreated, the mute behavior of children with SM can be unintentionally reinforced and thus increasingly difficult to treat. For example, a teacher may utilize written communication from a student with SM to increase classroom participation and inadvertently increase SM symptomology and withholding speech.

Although SM has a strong correlation with social anxiety and other anxiety disorders, the age of onset for children with SM is much earlier than the typical age of onset for other anxiety disorders. Thus treatment targeted for social anxiety, such as Cognitive-Behavioral therapy (CBT), may need adaptation or may not be age appropriate for children with SM (Bergman, 2013). However, some interventions that have shown promising results for treating anxiety disorders in children have demonstrated success with the SM population (Bergman, 2013; Reuther, Davis, Moree, & Matson, 2011). Early intervention is essential in successfully treating children with anxiety, including selective mutism (Auster, Feeney-Kettler, & Kratochwill, 2006; Busse, 2011).

Current literature establishes behavioral approaches, such as contingency management, differential reinforcement, shaping, and stimulus fading as efficacious for treating children with SM (Mulligan & Christner, 2012). The majority of treatments for children with SM incorporate a multimodal approach, which combines CBT and the principles of behavioral therapy (Corey, 2013). However, many studies examining the efficacy of treatment for children with SM have limitations such as no control group, lack of standardized measures, and small sample sizes. Given that schools are the typical
context where mute behavior occurs, they are ideal locations for implementation of an intervention to increase verbal behavior and/or application of exposure therapy (Sanetti & Luiselli, 2009).

Previous studies occurring in a school setting that have shown promising results, include the use of contingency management and stimulus fading (Casey, 2011; Orebeck, Johansen, Lundahl, & Kristensen, 2012). However, research on the use of exposure therapy within a school setting in combination with other efficacious intervention strategies is currently lacking. An important randomized control trial by Bergman, Keller, Piacentini, Bergman (2008) involved the application of behavioral techniques (i.e., stimulus fading, contingency management, and exposure) for treating children with SM in a clinic-based setting. Randomization, control group, and strong outcome methods of this large-scale study provide sound methodology. Further, Bergman’s publication, *Treatment for Children with Selective Mutism, An Integrative Behavioral Approach* (2013), which is based on the aforementioned study, provides a systematic description of treatment content and duration. However, the transportability of this intervention to a school setting has yet to be examined.

The present study examined the transportability and acceptability of a packaged behavioral intervention, implemented in a school setting, for treating students with SM. The study adds to the current literature by replicating the use of conjoint behavioral consultation when treating students with SM in a school setting (Mitchell & Kratochwill, 2013).
CHAPTER II
LITERATURE REVIEW

The first section of the literature review summarizes the history, diagnostic criteria, prevalence, age of onset, etiology, symptoms, and comorbidity of selective mutism (SM).

The next section focuses on evidence-based practice and selective mutism, including implications for school professionals with regard to consultation, evidence-based interventions, and transportability of evidence-based interventions to school settings.

Finally, the literature review describes the purpose of the present study.

History of Selective Mutism

Observations of children withholding speech in some settings despite intact speech abilities first appeared in the literature in 1877 by Adolf Kussmaul. Kussmaul coined this disorder “Aphasia Voluntaria.” Later, an English physician named Tramer retitled this disorder “Elective Mutism” (Tramer, 1934). Both names, “Aphasia Voluntaria” and “Elective Mutism,” suggested children with this disorder choose to remain mute. Historically this disorder has been regarded as defiant or disobedient behavior. Advances in research led to changes in perceptions, which prompted the current name “Selective Mutism,” first labeled this in the Diagnostic Statistical Manual of Mental Disorders in 1994 (4th ed.; DSM-4; American Psychiatric Association [APA], 1994). The word selective indicates a child withholds speaking in select social contexts rather than electing to withhold speech. Additionally, changes in diagnostic criteria for
SM, as represented by the most current version of the *DSM* (5th ed.; American Psychological Association [APA], 2013), demonstrate a shift from the previous conceptualization of the child refusing to talk to the possibility that the child is reacting anxiously in specific situations where speech is expected. A growing body of evidence has indicated that SM and anxiety are closely related (Camposano, 2011; Shipon-Blum, 2010; Viana et al., 2009).

In general, the confusion about whether children with SM are withholding speech due to defiance or due to internalizing anxiety may be related to the low incidence and frequent misdiagnosis of SM when compared to other childhood disorders (Sharp et al., 2007). However, recent news media revealed that the shooter in the Virginia Tech Massacre was diagnosed with SM as an adolescent, thus increasing awareness of this disorder (Camposano, 2011). Despite growing awareness of the etiology of SM, there is a need for more research examining effective treatments for children struggling with SM.

**Diagnostic Criteria**

According to the *DSM-5* (American Psychiatric Association [APA], 2013), the diagnostic criteria for SM are as follows: (a) withholding speech in specific social situations (e.g. school) in which there is expectation to do so despite speaking in other situations (e.g. home), (b) disruption in occupational or school environment or with communication in social settings, (c) duration of these symptoms must have been for at least one month not including the first month of school, and (d) the disturbance is not accounted for by a communication disorder, and does not occur along with the presence of autism spectrum disorder, schizophrenia, or another psychotic disorder.
**DSM-5 classification.** SM was previously classified under “Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence” in the *Diagnostic Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM IV-TR*, APA, 2000). However, the most current edition of the *Diagnostic Statistical Manual of Mental Disorders, DSM-5* (APA, 2013), has changed the classification to an anxiety disorder. This may be due to the majority of research supporting the notion that children with SM display symptoms of anxiety (Camposano, 2011; Viana et al., 2009). Further, empirical evidence supports the view of SM as a subcategory of anxiety, as many individuals who have SM experience comorbidity such as social phobia or separation anxiety disorder (Shipon-Blum, 2010; Viana et al., 2009).

**Prevalence**

The *DSM-5* (APA, 2013) reports prevalence rates of SM to be between 0.03% and 1%. However, Camposano (2011) documents this disorder may occur in 0.7 to 2% of early elementary students. Many researchers agree the prevalence rates of SM may be underrepresented due to the lack of knowledge of this disorder and recent changes in diagnostic criteria (Camposano, 2011; Wong, 2010). Moreover, consistent with other anxiety disorders, SM occurs more frequently among girls than boys (Camposano, 2011; Oerbeck, Johansen, Lundahl, & Kristensen, 2012; Phei, 2010; Wong, 2010). Although debate continues regarding exact prevalence, there is consensus that SM is a rare disorder (Christon et al., 2012; Sharp et al., 2007; Wong, 2010).
Age of Onset

The age of onset for SM is typically in early childhood, before the age of five (APA, 2013; Phei, 2010; Vecchio, & Kearney, 2009). Symptoms of SM are usually present by three years old but, as previously noted, may go undiagnosed until the child reaches school age (Camposano, 2011; Wong, 2010). As a child enters school the expectation to speak in social settings increases and the lack of speaking in such a setting interferes with academic success.

Symptoms

The most apparent symptom of SM is persistent failure to speak in situations in which speech is expected. Typically, withholding of speech occurs in a school setting. Teachers are usually the least likely to be spoken to. While some children with SM will speak to a few peers, other children with SM may not speak to any peers. Children with SM are typically less symptomatic in the home (Beare, Torgerson, & Creviston, 2008; Cunningham, McHolm, & Boyle, 2006; Phei, 2010). If speech is withheld at home, it is typically withheld from the father (Sharkey, & McNicholas, 2008). Regardless of where the silence occurs, children with SM can struggle speaking in various situations and/or to various individuals.

Other symptoms associated with SM may include separation anxiety, obsessive-compulsive symptoms and somatic complaints. Mulligan and Christner (2012) describe children with SM as shy and socially withdrawn. Children with SM may have difficulty with eye contact, oppositional behavior, depression, enuresis, and/or encopresis (Cleave, 2009; Sharkey & McNicholas, 2008). Moreover, Sharkey and McNicholas (2008, p. 256) note that children with SM are “slow-to-warm-up or behaviorally inhibited in
infancy and early childhood years.” Children with SM may have difficulty with transitions or changes in routine as well.

**Etiology**

The cause of SM is unknown, but two current theories include oppositional behavior or SM as a variant of social anxiety. Empirical support sways more toward the latter of these theories (Bergman, 2013; Manassis, 2009; Reuther, Davis, Moree, & Matson, 2011). Early research identified the cause of SM due to trauma or an unresolved conflict (Dow, Barbara, Sonies, Scheib, & Moss, 1995) or family history of anxiety. However, current research focuses on ruling out any psychological or medical factors and rather focusing on increasing speech and reducing anxiety symptoms (Manassis, 2009).

**Family history of anxiety.** Several studies have found that symptoms of SM, shyness, and/or anxiety within family members of individuals with SM occur frequently (APA, 2013; Black, & Uhde, 1995; Reuther et al., 2011). Manassis (2009) notes a frequency of familial history of social anxiety for individuals with SM. Researchers from a psychodynamic approach suggest exposure to an environment of depression, hostility towards other family members, social segregation, difficulty with verbal communication, and absence of a parent, specifically the father, as causes of SM (Kehle, Bray, & Theodore, 2006). From a behavioral perspective, SM is considered a learned behavior that is shaped and maintained by the environment. Regardless of the theoretical approach for causation of SM, there is considerable documentation of a high correlation of SM in children who have a history of SM in their family. Lastly, with a new classification of SM categorized under anxiety disorders in the most current edition of the *DSM*, it is likely that SM has a strong degree of heritability, as do other anxiety disorders.
English language learners. A diagnosis of SM cannot be made if an individual does not speak due to lack of knowledge of a language. However, a diagnosis in English language learners (ELL) population may be made if there is adequate understanding of the second language accompanied by persist refusal to speak (APA, 2013). Many researchers note a higher prevalence rate (four times higher) of SM in ELL populations compared to non-ELL populations (Busse & Downey, 2012; Manassis, 2009; Mulligan & Christner, 2012). The higher prevalence rate in ELL populations may be due to misdiagnoses as there is typically difficulty with transitions into learning a new language. The difficulty faced by ELLs during this learning stage may prompt a period of silence from these individuals (Busse & Downey, 2012). Best practice may be to withhold a diagnosis of SM for ELL populations for six months and observe if the withholding of speech occurs in both native and foreign languages. More research is needed to understand a connection, if any, between the higher prevalence of SM in ELL populations when compared to non-ELL populations.

Comorbidity of Selective Mutism

SM appears to be associated with other disorders including anxiety disorders, elimination disorders, communication delays, and oppositional behaviors. The DSM-5 (APA, 2013) states that in clinical settings a diagnosis of SM is almost always accompanied with another anxiety disorder diagnosis, most often social phobia. Comorbidity of social phobia occurs in 90% of children with SM and approximately 30% of children with SM have communication delays (Shipon-Blum, 2010).
Subtypes. One study attempted to establish clinical subtypes of SM (Cohan et al., 2008). The subtypes identified in Cohan et al.’s (2008) study included: (a) an anxious class with noticeable symptoms of social anxiety; (b) an anxious class with oppositional behavior and: (c) an anxious class with indications of a communication delay. A sample of 130 children between 5 and 12 years old (M=7.69) was used in this study. Parents of the participants were asked to complete a questionnaire about their child’s symptoms. Results indicated all participants showed “clinically significant elevations” on a measure of social anxiety. Only a small minority of children with SM showed clinically significant behavior problems, as reported by the parents of this study. One theory provided by the authors on the low parent reporting of children with SM having clinically significant behavior problems is that these children may only exhibit oppositional behavior when in situations that are anxiety provoking. The sample of children with SM with a communication delay showed clinically significant deficits in expressive communication. Results from this study indicate a need for more research in order to provide alternative treatment approaches tailored to the child’s clinical profile.

Other researchers suggest categorizing children with SM into subtypes as well (see Mulligan & Christner, 2012; Mulligan, 2012; Vecchio, 2009). When working with children with SM, an examination of distinct characteristics is important for tailoring treatment to meet the child’s needs. Mulligan and Christner (2012) suggest using the following categorizations when working with children with SM to aid in selecting appropriate treatment strategies: (a) Global Mutism, the least impaired, (b) Anxiety/Language Mutism, this subtype may meet criteria for comorbidity with another anxiety disorder, (c) Low Functioning Mutism, this subtype, in comparison to other
subtypes, has significantly lower academic success, (d) *Sensory/Pathology Mutism*, which includes comorbidity with sensory issues, and (c) *Emotional/Behavioral Mutism*, this subtype can be characterized by difficulty with control, transitions, and defiant behavior. Additional research on classifying SM may aid in targeting interventions to specific SM subtypes.

**Selective mutism, an anxiety disorder.** There is growing consensus among researchers that SM is a variant of social phobia (Bergman, 2013; Cohan et al., 2008; Shipon-Blum, 2010; Viana et al., 2009). Studies have found that 60-90% of children with SM meet the criteria for social phobia (Manassis et al., 2007; Shipon-Blum, 2010). Black and Uhde (1995) also found an association between SM, anxiety, and social phobia. Additionally, symptoms of SM are topographically similar to symptoms of social phobia such as social avoidance, distress in social situations, and fear of speaking in specific situations or to specific individuals. Despite similarities between social phobia and SM there are notable differences such as age of onset; the age of onset for social phobia is typically ten years old while the age of onset for SM is typically before the age of five. As previously mentioned, with the most current edition of the *DSM* changing SM classification from *usually first diagnosed in infancy, childhood, or adolescence* to *Anxiety Disorders* it seems there is a consensus that SM is indeed highly related to some form of anxiety.

**Selective mutism and communication delay.** Given that children with SM have a high rate of comorbidity with other anxiety disorders it is reasonable to believe there may be other comorbidities such as communication delays. Mulligan and Christner (2012) document that expressive language disorders and articulation disorders are
common among children with SM. It is noted in the SM literature that there is a higher prevalence of comorbid communication delays in this population. Specifically, deficits in expressive and receptive language and phonemic awareness have been cited (Reuther et al., 2011; Viana et al., 2009). A 2007 study assessed the language skills of children with SM through standardized measures, children with anxiety disorders, and a control group. Researchers found that children with SM showed deficits in receptive vocabulary, phonemic awareness, receptive grammar, and visual memory, demonstrating that the severity of language deficits may predict the severity of SM (Manassis et al., 2007). However, the extent to which communication delays occur in children with SM needs further investigation.

One study investigated language ability and academic ability in children with SM, children with an anxiety disorder, and a control group. Results indicated lower receptive vocabulary scores and lower math scores in children with SM and children with an anxiety disorder compared to the control group (Nowakowski et al., 2009). However, all scores fell at or above average; there were no significant differences between children with SM and the control group. Notably, caution should be taken when assessing children with anxiety disorders, as results may not reflect a true score due to tests provoking anxiety.

Selective mutism and oppositional behavior. Previous literature has indicated a relationship between SM and oppositional behavior (Black, & Uhde, 1995; Yeganeh, Beidel, & Turner, 2006). However, current evidence supports the notion that children with SM exhibit avoidant behaviors due to anxiety-provoking situations, which may be misinterpreted as defiance or oppositional behavior (Cleave, 2009; Reuther et al., 2011;
Viana et al., 2009). Children with SM may withhold speech in specific environments as a way to avoid anxiety-provoking situations. Further, parents or teachers may encounter resistance from children with SM to participate in speech; this behavior may be recognized as willful or controlling rather than anxious, avoidant behavior (Cohen et al., 2008).

**Evidence-Based Interventions for SM**

Several treatment methods have been identified useful when treating children with SM including a psychodynamic approach, psychopharmacology, a behavioral approach, and cognitive-behavioral therapy (CBT). It is beyond the scope of this study to critically analyze pharmaceutical treatment modalities. As understanding of etiology of SM has evolved, so has consideration for best practice when treating children with SM. Previously, psychodynamic and family therapy approaches were preferred treatments. However, lack of empirical evidence and difficulties with generalizing successes in treatment to various settings resulted in a decreased popularity of these approaches. Currently, behavioral-based treatments demonstrate the greatest efficacy (Mulligan & Christner, 2012). A review of literature by Pionek-Stone, Kratochwill, Sladeczek, and Serlin (2002) revealed that treatments employing a behavioral approach with SM were better than no treatment at all.

The most effective treatment approaches for SM include anxiety-reduction interventions such as CBT, behavioral therapy techniques, or pharmacological treatments. Therapeutic techniques include reinforcement, fear hierarchy, stimulus fading, shaping, contingency management, systematic desensitization, differential reinforcement, cognitive restructuring, self-modeling, and generalization of audible speech to various
environments. Many studies aimed at effective treatment for children with SM have limitations such as no control group or small sample sizes (Casey, 2011; Lang, Regester, Mulloy, Rispoli, & Botout, 2011). This may be due to the low incidence of SM as well as misdiagnosis. Further research with more rigorous methodology is needed to aid in validity and reliability when treating children with SM.

**Behavioral interventions.** Behavioral researchers view SM as a learned behavior resulting from escaping anxiety-provoking situations or gaining attention from withholding speech. Behavioral interventions employ techniques such as stimulus fading, shaping, contingency management, social skills training, and modeling with the goal to increase verbal behavior across multiple settings. Stimulus fading involves gradually increasing difficulty of tasks to shape a desired behavior (Cooper, Heron, & Heward, 2007). For example, fading in various settings where speech was previously withheld or challenging speech to occur in the presence of new people are two ways stimulus fading is employed when treating children with SM. Shaping and contingency management involves reinforcing one behavior while ignoring other behaviors. Criterion for performance is also increased as behavior change is accomplished (Cooper, Heron, & Heward, 2007). Reinforcement is provided contingent upon completion of successive approximation of speech (e.g. gestures or whispers). Social skills training and modeling involve practicing social situations and modeling specific behaviors to improve interaction in various social situations (Corey, 2013). Many single-case experimental designs and case studies have shown promising results of these techniques for treating children with SM (Beare, Torgenson, & Creviston, 2008; Sanetti & Luiselli, 2009). However, data is lacking on generalizing audible speech after treatment ceases.
Sanetti and Luiselli (2009) used a behavioral-based intervention for treating an eight-year-old child with SM using a changing criterion design. The intervention consisted of stimulus fading, shaping, goal setting, and contingency management. A speech hierarchy and reinforcement system was also used. This in-school, teacher-implemented treatment successfully improved frequency and volume of the participant’s verbal behavior. However, due to the case study design and the small sample size, generalization of the results are limited.

Another case study by Beare et al. (2008) used positive reinforcement with prompt fading to increase verbal behavior and generalized verbal communication in a 12-year-old boy who was selectively mute at school. Stimulus fading was used through changing the environment and fading the number of prompts. Contingency of receiving the reward was based on the number of prompts used in a session. For example, the participant was told that if he answered a certain number of questions in an audible voice with less than a determined amount of verbal prompts from the therapist, he would receive the reward. Each session more questions were required to be answered with fewer verbal prompts to receive the reward. This study showed positive results of increasing the participant’s verbal behavior across all three settings. The ability to thin out the reinforcement for speaking within the classroom was limited, thus there is a possibility that the behavior change was not maintained after removal of the reinforcers.

**Cognitive-behavioral therapy.** CBT is an approach that emphasizes changing distorted thinking and maladaptive behavior. CBT techniques include psychoeducation, exposure therapy, relaxation techniques, cognitive restructuring, modeling, contingency management, and role-playing. Exposure therapy typically involves creating a list of fear
provoking stimuli, ranked in a hierarchy of ascending difficulty. Starting with the least
difficult a client is exposed to each of the steps, either in vivo or imaginal. Once each
step is completed the client moves to the next step. Relaxation techniques can include
guided imagery or progressive muscle relaxation. CBT involves structured activities
designed to produce changes in thoughts, feelings, and behaviors (Corey, 2013).

Systematic desensitization, another type of behavioral intervention, introduces a
child to anxiety-provoking stimuli, either in vivo or imaginal, to confront the feared
stimuli. Typically, a hierarchy of fearful stimuli is created for the child. During exposure
to the anxiety-provoking stimuli, the child is taught to use various relaxation techniques.
Vecchio and Kearney (2009) used various CBT techniques, including systematic
desensitization, to treat nine youth with SM. Participants were exposed to fear-provoking
situations based on the participant’s created fear hierarchy. A daily anxiety rating scale
and a daily behavior scale that recorded verbal behavior was used as assessment
measures. Results demonstrated an increase in audible speech.

One study used CBT for treating an eight-year-old child with SM. Treatment
consisted of 21 sessions including psychoeducation, exposure therapy, cognitive
restructuring, social skills training, and maintenance and relapse prevention. Results
indicated the participant no longer met the diagnostic criteria for SM at the end of the
treatment (Reuther, Davis, Moree, Matson, 2011).

**Psychosocial interventions.** Researchers in one study focused on using a social
problem-solving intervention, which involves teaching appropriate social skills, verbal
rules, and alternate behavior, as well as performance evaluation (O’Reilly et al., 2008).
Researchers in this study applied a social problem-solving intervention to treat two sisters
with SM. Social problem-solving interventions involve teaching appropriate social skills, teaching verbal rules, alternate behavior, and performance evaluation. After implementation of this intervention there was an observed increase in verbal responses in the sisters’ general education classroom. Additionally, three month follow-up data demonstrated a continuation of improvement in verbal responses in the classroom.

**Multimodal interventions.** The majority of studies on effective treatment for children with SM use a multimodal therapy approach. Multimodal therapy combines CBT and the principles of behavioral therapy (Corey, 2013). This approach seeks to understand and investigate the correlation between a child’s speaking behavior and environmental circumstances (Mitchell & Kratochwill, 2013).

One such study by Bergman, Gonalez, Piacentini, and Keller (2013) used a treatment plan that is easily replicated and has since been published as a packaged intervention for children with SM (Bergman, 2013). Researchers in this study used a behavioral intervention for decreasing symptoms of SM, and increasing functional speech in a sample of 21 children diagnosed with SM using a waitlist control design. The children participated in a 20-week intervention called “Integrated Behavior Therapy for Selective Mutism”. The treatment included: graduated exposure therapy, positive reinforcement, anxiety rating scales, fear hierarchy, stimulus fading, and cognitive restructuring. This study took place in a clinical setting with various homework assignments given to parents and school professionals to complete with children outside of the sessions. Consultation and communication between school professionals, therapists, and parents occurred to help generalize treatment to the child’s school and home setting. Results indicated an increase in functional speech but no evidence of
reduced social anxiety. Observations at a 3-month follow up indicated continuous increase in functional speech. Some strengths of this study when compared to similar studies on treatment for children with SM include an independent evaluator and a randomized control group.

**Selective Mutism in an Educational Setting**

Schools are typically the environment in which mute behavior occurs for the majority of children with SM, and schools may be the singular source of treatment for many of these children. Children with SM typically exhibit symptoms in the school environment and SM is historically difficult to treat, thus schools are an excellent setting to provide treatment (Sanetti & Luiselli, 2009). These considerations demonstrate the need for effective, applicable interventions within a school setting.

**School-based consultation for SM.** When treating children with SM it is important to utilize a wraparound approach by involving teachers, parents, and other school professionals (Pionek-Stone et al., 2002). Moreover, because children with SM typically speak in the home, communication with parents is essential. Consultation involving all parties can strengthen treatment effects and aid in generalization of intervention goals. Successful consultation can increase the likelihood of positive treatment outcomes (Auster et. al, 2006).

One such consultation model, conjoint behavioral consultation (CBC), is a service delivery model that promotes mental health practice in a school setting (Sheridan & Kratochwill, 2008). This model focuses on collaboration between parents, teachers, and other school professionals (Auster, Feeney-Kettler, & Kratochwill, 2006; Sheridan & Kratochwill, 2007). Parent involvement may help in identification of reinforcers for the
child, as well as implementation of interventions at home. The CBC model can provide teachers and parents with skills to be effective intervention agents. This helps foster treatment success and maintenance of intervention goals (Auster, et. al., 2006).

Several recent studies have utilized a CBC model when working with children with SM (Howe & Barnett, 2013; Mitchell & Kratochwill, 2013). A study by Mitchell and Kratochwill (2013) utilized a CBC model while treating five children with SM using stimulus fading, contingency management, and shaping procedures. Parents and school professionals noted a decrease in reluctance to speak for three out of four of the participants. One limitation of this study is the lack of generalization of verbal behavior to a classroom setting during a typical school day.

**School-based interventions for SM.** The previously mentioned studies by Beare et al (2008) and Sanetti and Luiselli (2009) were implemented in a school setting. Other studies include consultation with school personnel as an integral component of treatment (Bergman, 2013; Mitchell & Kratochwill, 2013). Not speaking in school can hinder academic success and hinder social development. Early intervention and appropriate, thorough assessment is crucial when treating children with SM or other anxiety disorders (Auster et al., 2006).

In a study by Casey (2011), a practicing school psychologist implemented an intervention using a single case design for a six-year-old girl with SM in a school setting. Academic-based questions ranging from easy to difficult were used during the session to prompt verbal responses. Casey (2011) also utilized stimulus fading by having the participant’s father attend some of the early intervention sessions. The following school year the participant was observed using verbal behavior within a classroom setting.
Oerbeck, Stein, Wentzel-Larson, Langsurd, and Kristensen (2014) used a multimodal cognitive behavioral approach for school-based treatment of 24 children with SM. Treatment was initiated in a home setting and then transported to the classroom setting. Treatment included psychoeducation for parents and school professionals, positive reinforcement, shaping, stimulus fading, and a sound recorder. The primary outcome measure used was the School Speech Questionnaire (Bergman, Keller, Wood, Piacentini, & McCracken, 2001). Results indicated improvement in speaking behavior; however, greater improvement was observed in the younger participants in the study. A follow up study was conducted and researchers corroborate no decline in speaking behavior one year after treatment (Oerbeck, Stein, Pripp, & Kristensen, 2014). Although this study was conducted in a school setting, treatment was initiated in the home, thus there was ample home-school communication and training.

**Transportability of evidence-based interventions to a school setting.** The definition of transportability is “the degree to which a particular intervention developed in a research setting can be moved to service provision settings” (Elkins, McHugh, Santucci, & Barlow, 2011, p. 163). Best practice for school psychologists when choosing an intervention is to integrate the best available research into treatment or to utilize evidence-based interventions (EBIs). Research on treating children with SM suggests the use of a multimodal behavioral approach. Few studies focusing on treating students with SM have been implemented in a school setting and even fewer studies have involved the use of a protocol or manual to prompt ease of replication.

Some strategies to practice when transporting empirically supported research suggested by Elkins et al (2011) are either to transport treatment by keeping the original
format or to modify the intervention. Modifications to treatment protocols increase the compatibility and replication of treatment into a school setting. However, caution must be made when adapting treatment to a school setting without impacting efficacy (Bernstein, 2010).

Transporting research-based practice to a school setting is faced with many barriers. For instance, training and support for implementation is limited. As previously mentioned, many research-based interventions are delivered and validated in a clinic-based setting. When transporting evidence-based interventions to a different setting with or without modifications, it is imperative to make “empirically informed adaptations of intervention and training practices to fit the school context” (Lyon, Charlesworth-Attie Vander Stoep, & McCauley, 2011, p. 570).

Acceptability of evidence-based intervention in a school setting. Acceptability of interventions is a key component in improving transportability, especially when working within a school setting (Tharinger et al., 2009). Limited school resources necessitate using resources available such as parents, teachers, and other school professionals when implementing interventions in a school setting. In order to encourage participation of these interventions from various parties, acceptability of the intervention is crucial (Fixsen, Blase, Horner, & Sugai, 2008). Additionally, visibility of intervention success is important (Forman, Olin, Hoagwood, Crowe, & Saka, 2009).

The Present Study

School (specifically, the classroom) is the primary setting where symptoms of SM are exhibited (Elizalde-Utnick, 2008). School professionals’ knowledge about SM is lacking due to the low occurrence of SM (Busse & Downey, 2011). Many school
psychologists may only encounter one student with SM in the duration of their career. Further, SM can inadvertently be maintained by teachers who reinforce mute behavior by answering for the child or by lessening the demands for speaking (Davidson, 2012). It is essential that teachers, school psychologists, and other school professionals possess the knowledge and skills to successfully help children with SM.

When encountering children with SM in a school setting many factors should be considered. Academically, children with SM are difficult to assess. Socially, children with SM struggle with peer relations, sustaining friendships, and self-advocacy skills are lacking (Oerbeck et al., 2011). Thus, it is essential that the school environment is the basis of treatment for children with SM rather than a clinical setting alone (Sanetti & Luiselli, 2009; Stone, Kratochwill, Sladezcek, & Serlin, 2002).

Currently there are limited EBIs for treating SM in a school setting. One promising treatment by R. Lindsey Bergman (2013) involves a “multicomponent outpatient treatment program” that could be easily modified and shortened to accommodate use by practitioners in a school setting (p. 1). This approach would lend itself well to a school setting given the constraints and limitations of practitioners in school setting. The current study attempts to close the gap in the literature on effective school-based treatments for SM by implementing a variation of Bergman’s evidence-based intervention in a school setting to decrease anxiety in children with SM and increase verbal behavior across multiple settings.
CHAPTER III

METHOD

Research Questions and Predictions

The following two research questions were posed in the current study:

Research question 1. What is the effectiveness of modifying the Integrated Behavior Therapy for Selective Mutism (IBTSM; Bergman, 2013) program within a school setting?

Prediction 1. It was predicted that the implementation of IBTSM, shortened to eight weeks, would be effective for treating students with SM. This prediction was based on research demonstrating the efficacy of IBTSM (Bergman, 2013) and research demonstrating fidelity when implementing manualized treatment with modifications (Kendall, Chu, Gifford, Hayes, & Nauta, 1998). Due to the recent shift of classification of SM, as evidenced in the most current edition of the DSM, it was predicted that transporting a manualized treatment for students with SM would have results similar to research conducted on transporting manualized CBT for students with anxiety (Ginsburg, Becker, Newman Kingery, & Nichols, 2008).
**Research question 2.** Is the use of the IBTSM program within a school setting acceptable to parents and school professionals of children with SM?

**Prediction 2.** It was predicted that acceptability of IBTSM within a school setting would be high. This prediction is based on the assumption that by reducing anxiety and increasing verbal behavior across settings there would be high levels of parent and school professional acceptability of the intervention. Further, the use of Conjoint Behavioral Consultation (CBC) should result in higher levels of acceptability (Sheridan & Kratochwill, 2008).

**Research Design**

A multiple baseline across participants experimental design was used to evaluate an increase of verbal behavior in a school setting. This methodology was chosen for several reasons; (a) due to the low prevalence of SM a control group is not feasible, (b) when using a single-case design a large number of participants is not required, (c) a waitlist is not necessitated, and (d) the participants’ baseline serves as control for comparison purposes. Past research has shown a single-case design to be a simple, yet powerful, design when working with low incidence populations such as SM (O’Reilly et al., 2008). The use of a single-case design allowed for observance of differences across participants, participants serving as their own control, and allowed for arduous evaluation of intervention effects (Kratochwill et al., 2010).

A common single-case design methodology is a multiple baseline design. This involves manipulating the independent variable (IBTSM intervention) across multiple settings, behaviors, or participants. For the purpose of this study, a multiple baseline design was used across participants (intervention effect was replicated across three
participants at different start points). Behavior was predicted to change when, and only when, the intervention was introduced. By using a multiple baseline design, naturally occurring changes in the participants’ environment were ruled out.

**Participants and Setting**

**Participants.** Participants in this study included \( n = 3 \) students (ages ranging from five to ten years old), three parents, and three school professionals selected by convenience sampling. Participant recruitment is discussed later in this chapter in the procedures section. Criterion for student participation in this study included: (a) enrollment in a public school, (b) a demonstrated lack of speech within a school setting with teachers and/or peers, (c) a mean score overall of 12.99 or lower on the Selective Mutism Questionnaire (SMQ; Bergman et al., 2001; Appendix A), (d) a completed and returned signed child assent to participate in the study, and (e) no current involvement in any behavioral treatment for SM. Criteria for school professional participants included returning a signed consent form and direct involvement with the student participant. Criterion for parent participants included returning a signed consent form. As suggested by Bergman (2013), student participants were not excluded if they were taking medication at the time of intervention.

Participants were excluded if: (a) the child or parent did not speak proficient English, (b) there was an indication the student participant had a communication disorder, autism spectrum disorder, schizophrenia, or another psychotic disorder, and (c) the school, school professional, and/or parent was unwilling to participate in the intervention, or, (d) consent or assent letters were not signed and returned to the principal investigator.
A detailed description of each of the three participants follows. Participants all attended different public schools located in the Midwest. Pseudonyms were used to protect participant confidentiality.

Danny was an eight year old Caucasian second grade male enrolled in a public school. He was identified with a specific learning disability in the first grade but during his second grade year eligibility was changed to other-health impaired (OHI) as he had a medical diagnosis of an anxiety disorder. Danny often complained of stomachaches and frequently visited the school nurse. He received speech services twice a week for seven months and had spoken one word with the speech therapist. His team consisted of his mother, father, the speech therapist, the researcher, and his classroom teacher. Danny spoke to his immediate family in the home, whispered to his family in public, spoke to some friends at home or on the phone but he would not speak in the presence of intermediate family members. Danny would not speak to adults at school but would whisper to his peers. He would raise his hand in class and write his wants and needs on a whiteboard. He was observed to participate in a small group setting by using the whiteboard to answer questions. He would not read aloud to his parents but rather would whisper when reading to his mother. As reported by his mother, he reached all developmental milestones at an appropriate age.

Karen was a six year old African American first grade female enrolled in a chartered public school. She received an individualized education plan (IEP) in the areas of speech, reading, writing, and math beginning during her first grade year of school. She received 90 minutes per month of speech services from an intervention specialist at her school. Her team consisted of her mother, the classroom teacher, and the researcher.
Karen whispered answers to the intervention specialist and her classroom teacher prior to enrollment in the study. As reported by her mother, Karen often spoke at home and sang. However, her mother reported if there was a disagreement between Karen and her cousin she would not seek adult assistance. Often times, Karen would speak to her mother about incidents of classmates engaging in inappropriate behavior at school but Karen would not tell a safe adult at the time of the incident. At school, Karen used adults as meditators to communicate with peers. She experienced enuresis at school three times during her kindergarten year and once during her first grade year. As reported by her mother, she wore glasses for an amblyopia and she reached all developmental milestones at an appropriate age.

Nolan was a ten year old fourth grade African American male enrolled in a public school. He was struggling academically in the area of math but received satisfactory grades in all other academic areas. He had a medical diagnosis of attention deficit hyperactivity disorder (ADHD) and did not take medication at the time of the study. His team consisted of a school counselor intern, his mother, and the researcher. He spoke to many peers at school but was mute with adults in the school, community, and home setting. Specifically, he would not speak to his math teacher, gym teacher, principal, or his grandfather’s girlfriend. This was his first year enrolled at the school where the study took place, but his mother reported that he had difficulty with communication at his old school as well. As reported by his mother, Nolan spoke single words other than “mama” or “dada” after the age of three and put two or more words together after the age of three. She also reported that he required prompting to speak loud and clear. All other developmental milestones were reached at an appropriate age.
**Setting.** The intervention took place at school, specifically in an empty classroom or empty office at the participating schools. Systematic Direct Observation (SDO) data were collected in the participants’ classrooms. Additionally, assignments and data collection from parents, teachers, and/or other school professionals occurred outside of sessions in various settings (i.e., home & community).

**Outcome Measures**

Outcome measures included SDOs, which served as the primary repeated measure, broadband instruments, and narrowband instruments, which were evaluated at pre and post intervention. SDOs were used to measure changes in speaking behaviors within the school setting. The SMQ and SSQ, both narrowband instruments with good psychometric properties, were administered as pre- and post-measures (Bergman et al., 2001; Bergman et al. 2002). Lastly, the widely used broadband measure, the Behavioral Assessment System for Children, Second Edition Parent Report Scales and Teacher Report Scales (BASC-2; Reynolds & Kamphaus, 2007), were administered as pre- and post-measures. This data was collecting during CBC phases one and four.

**Primary dependent measure.** A *School-Based Observation Form for Selective Mutism* was used as the SDO during the baseline period in multiple settings in the school (e.g., unstructured activities, structured activities, cafeteria, etc.) and during the intervention as the primary repeated dependent measure demonstrating impact of the independent variable. The observations occurred for approximately 30 minutes weekly. Observations occurred, at minimum, three times in each setting for the baseline phase data and weekly during the intervention phase (Shriver, Segool, & Gortmaker, 2011). The *School-Based Observation Form for Selective Mutism* is a partial interval recoding
system in which non-vocal and vocal behaviors are recorded every 15 seconds. This measured the type of verbal behavior exhibited by participants, as well as the opportunities to communicate both vocally and non-vocally.

Further, to obtain inter-observer reliability, an independent observer was utilized for 15% of the observations for each participant and calculated for similarities. Although past researchers have utilized independent observers for 20% of observations for studies comparable to this study, using independent observers for 20% of observations was not feasible as this was a voluntary role (Mitchell & Kratochwill, 2013). Independent observers were current school psychology graduate students. The independent observers participated in an online ethical training required by the Institutional Review Board as well as a 30 minute training session by the principal investigator on the SDO measure (Appendix B). Independent observers were compensated for their time with a token stipend or by earning credit towards their grade in a program-required course.

**Selective mutism questionnaire.** The SMQ is an assessment tool that aids in understanding symptomology, identifying treatment, and analyzing treatment success (Bergman et al., 2001; Appendix A). The SMQ helps identify verbal behaviors in various settings. The SMQ yields three subscales categorized by settings: 1) school, 2) home and family, and 3) other social situations. This questionnaire is a parent-report, 17-item measure. Parents use a 4-point scale to rate the frequency of the child’s speaking behavior in these three settings. Total scores on the SMQ have demonstrated a high correlation with interference ratings and good internal consistency (Cohan et al., 2008). Further, the SMQ has demonstrated utility when measuring baseline data and intervention monitoring (Manassis, 2009). Lower scores on the SMQ indicate more severe symptoms.
of SM (lower frequencies of verbal behaviors). Based on a study by Bergman et al (2008) a mean score for children with SM is 12.99 (SD=7.23). The SMQ has been found to have strong psychometric properties (Bergman et al., 2001; Letamendi et al., 2008). However, the psychometric properties are limited as this instrument is fairly new. Internal consistency and internal reliability of the SMQ are suitable as well.

**School speech questionnaire.** The School Speech Questionnaire (SSQ) is an assessment tool to aid in understanding of symptomology, identifying treatment, and analyzing treatment success within a school setting (Bergman et al., 2001; Appendix A). The SSQ is a teacher-report measure that assessed frequency of verbal behavior. Like the SMQ, the SSQ has a 4-point scale to rate the frequency of verbal behavior in the school setting. The SSQ demonstrates good internal consistency, reliability, and validity (Bergman et al. 2002). Consistent with the SMQ, lower scores on the SSQ indicate lower frequencies of verbal behaviors, and thus more severe symptoms of SM.

**Behavioral Assessment System for Children, 2nd Edition (BASC-2).** The BASC-2 (Reynolds & Kamphaus, 2004) is a broadband rating scale that measures a wide range of behaviors in children and adolescents. This normative assessment measures behaviors in the school, home, and community settings. The BASC-2 has a teacher rating scale (TRS) and parent rating scale (PRS), which have been designed to sample symptoms of disorders included in the DSM.

*BASC-2 TRS.* The TRS includes forms appropriate for ages 2 to 5, ages 6 to 11, or ages 12 to 21. The TRS was administered to teachers or school professionals of the participating students as an additional pre-post measure of anxiety and for exploration of other potential behaviors (i.e., social skills, adaptive behaviors, withdrawal). The BASC-
2 TRS includes five broad composites with corresponding subscales: (a) Externalizing Problems (hyperactivity, aggression and conduct problems), (b) Internalizing Problems (anxiety, depression, and somatization), (c) School Problems (attention and learning), (d) Adaptive Skills (adaptability, social skills, leadership, study skills, and functional communication), and (e) Behavioral Symptoms Index (BSI; hyperactivity, aggression, depression, atypicality, withdrawal and attention problems; Reynolds & Kamphaus, 2004).

_BASC-2 PRS_. The BASC-2-PRS (Reynolds & Kamphaus, 2004) includes forms appropriate for ages 6 to 11 and ages 12 to 21. The PRS was administered pre-and post-intervention to parents of participating students as an additional measure of anxiety and for exploration of other potential behaviors. The PRS measures adaptive and problem behaviors in children in various settings (home, school, and community). The BASC-2 PRS includes five broad composites with corresponding subscales: (a) Externalizing Problems (hyperactivity, aggression, and conduct problems), Internalizing Problems (anxiety, depression, and somatization), School Problems (attention and learning), (d) Adaptive Skills (adaptability, social skills, leadership, activities of daily living, functional communication), and (e) Behavioral Symptoms Index (BSI; hyperactivity, aggression, depression, atypicality, withdrawal and attention problems).

The BASC-2 has good reliability; internal consistency, test-retest reliability, and inter-rater reliability are good. Internal consistencies for composite scores are high (ranging between .80’s to .90’s) and are consistent between males and females, between clinical and nonclinical groups, and between ages. Test-retest reliability and inter-rater reliability are markedly high at the preschool and child age range. Further, the manual
reports good evidence for construct-validity, scale intercorrelations, and factor analyses. The BASC-2 has exhibited concurrent validity with other similar measures (e.g., Conner’s and Achenbach).

Scores on the BASC-2 have a mean of 50 and a standard deviation of 10. Thus, scores that fell within the range of 41-59 were considered average. Scores that fell within the 60-69 ranges on the clinical scales were considered at-risk and scores that fell at or above 70 were considered clinically significant. Scores that fell within the 31-40 ranges on the adaptive scales were considered at-risk and scores that fell 30 or below were considered clinically significant. Scores that fell in the At-Risk range indicated a potential or developing problem that may need to be monitored carefully. The BASC-2 defines score in the At-Risk range as indicating a presence of significant problems that, while requiring treatment, may not be severe enough to warrant a formal diagnosis. The BASC-2 defines scores that fall in the Clinically Significant range as denoting a high level of maladaptive behavior or absence of adaptive behavior (Reynolds & Kamphaus, 2004).

**Parent interview.** A semi-structured parent interview was used to gather information about each participant and as a screening tool to ensure each participant was a good fit for the study (Appendix C). Developmental, medical, treatment, and school history, as well as any current behavioral concerns were obtained and discussed.

**Measures of Treatment Acceptability**

**Treatment evaluation inventory – short form (TEI-SF; Kelley, 1989).** A modified version of the TEI-SF was used to measure treatment acceptability. Kelley et al. (1989) define treatment acceptability by focusing on if the treatment is reasonable and
suitable for treating the identified problem. The TEI-SF is a nine-item questionnaire that measures intervention acceptability, social validity, and perceptions of effectiveness. Each item on the questionnaire is rated using a five-point scale, with one corresponding to strongly disagree and five corresponding to strongly agree. The TEI-SF has been used in various studies to measure treatment acceptability when implementing interventions for children with anxiety (Bernstein, 2010; Casey, 2011; Mitchell & Kratochwill, 2013). The TEI-SF has good internal consistency and is considered an effective measure of behavioral treatment or intervention acceptability (Bernstein, 2010; Kelley et al., 1989; Appendix A).

**Service Delivery Model: Conjoint Behavioral Consultation (CBC)**

Interactive planning and collaboration through a family-school partnership was an essential piece of the current study. Due to the nature of SM symptomology primarily occurring in a school setting with speech often only occurring in the home, high teacher and parent involvement, mutual respect and consensual decision making was imperative during the consultation process. Conjoint behavioral consultation (CBC; Sheridan & Kratochwill, 2008) promotes communication between home and school and all team members are asked to contribute expertise to aid in problem solving the child’s difficulties (Auster et al., 2006). CBC promotes collaboration between home and school, which is essential to the success of treating children with SM (Bergman, 2013; Mitchell & Kratochwill, 2013).

CBC focuses on a family-school partnership and is most frequently used and accepted within a school setting. This indirect service delivery model uses four phases: 1) problem identification, 2) problem analysis, 3) intervention implementation, and 4)
intervention evaluation. Each of these phases involves a meeting attended by the parent, teacher, and consultant. For this study the researcher served as the consultant. It was predicted that the use of CBC would assist parents and school professionals in becoming intervention agents that would, in turn, promote generalization and transportability of the intervention, and ultimately positive outcomes for the child. The stages of CBC in the present study followed the sequence described below:

**Stage one: problem identification.** During the problem identification phase the team, which included the student’s teacher or school professional, the student’s parent, and the researcher (consultant), met to identify concerns and discuss goals. During this meeting rapport was established, as well as, completion of the parent interview. Further, an analysis of functionally observing the student’s behavior was discussed. This included discussion of the settings in which the mute behavior occurred, what was happening before the behavior occur (the antecedents), operationalizing the mute behavior (whispers, speaks to peers, etc.) and a discussion of the consequences for mute behavior. The team collaborated to develop goals for intervention. Each team member was given assignments to complete before the next meeting. See Table 1 for an outline of assignments.
Table 1

Assessments Completed During the Problem Analysis Meeting

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMQ</td>
<td>Parent</td>
</tr>
<tr>
<td>BASC-2 PRS</td>
<td>Parent</td>
</tr>
<tr>
<td>SSQ</td>
<td>Teacher/School Professional</td>
</tr>
<tr>
<td>BASC-2 TRS</td>
<td>Teacher/School Professional</td>
</tr>
<tr>
<td>Record Review</td>
<td>Researcher</td>
</tr>
<tr>
<td>SDO Observations</td>
<td>Researcher/Independent observer</td>
</tr>
</tbody>
</table>

Stage two: problem analysis. The second meeting with the team, stage two, involved discussion of data collection from the problem identification phase. A goal was decided upon. Formal steps for implementation of the intervention were discussed, such as exposure sessions and homework assignments. Further, review of a psychoeducation fact sheet and phenomenology fact sheet taken from the IBTSM was discussed. Notes and discussion from this meeting formed the basis for creation of intervention binders and the first session with the child.

Stage three: intervention implementation. The third stage took place during the stage two meeting and after completion of the assessment phase. Due to a rigorous school schedule and parent work commitments the team members decided to combine the stage two and three meetings into one meeting. During stage three the team discussed implementation of the intervention. Logistics, such as setting and time for intervention sessions were discussed. Further, intervention integrity was discussed. A primary task in
this stage was to predict any future troubleshooting and maximize intervention acceptability.

**Stage four: intervention evaluation.** The final meeting, stage four, took place eight weeks after the start of the intervention. Goals for the intervention evaluation meeting included: discussion of intervention effectiveness, termination of the intervention, and intervention acceptability. The TEI-SF was administered to school professionals. Additionally, the team was asked to complete all post measures, including the SSQ, SMQ, BASC-2 TRS, and BASC-2 PRS.

**Intervention Materials**

Intervention materials were based on a packaged intervention created by Bergman (2013), known as *Integrated Behavior Therapy for Selective Mutism* (IBTSM; Bergman, 2013). Bergman’s intervention utilizes techniques from a CBT approach, as well as behavioral strategies. Therapeutic techniques include contingency management, stimulus fading, fear hierarchies, shaping, and exposure therapy. The intervention followed a case conceptualization approach by which session matching occurred through collaboration of the team and were based on the specific needs of the student. As suggested by Bergman (2013), the parent and school professional received an intervention binder, which included exposure assignments (school assignments and home assignments) to be completed outside of intervention sessions. Further, daily intervention notes, successes, and setbacks were included as a means of communication between the researcher and the parents and school professionals. The researcher reviewed these notes during weekly sessions. See Appendix D for sample intervention materials.
**Intervention Sessions**

All intervention sessions were based on Bergman’s (2013) treatment for children with SM. See Table 2 for an outline of sessions and session objectives. Due to the recent change in the DSM-5 classification of SM to an anxiety disorder, emphasis was placed on the four main components of CBT for children with anxiety (Chorpita, 2007). This included development of a fear hierarchy, psychoeducation, exposure therapy and maintenance of learned behavior. Further, as noted by Bergman (2013), exposure exercises were an integral part of the intervention.

Table 2

*Session Overview and Intervention Objectives for Implementation of IBTSM*

<table>
<thead>
<tr>
<th>Session/Topic</th>
<th>Objectives</th>
</tr>
</thead>
</table>
| **Session 1** | - Rapport building and pairing with student  
- Review past events and completed homework  
- Discuss intervention goals with student  
- Create reward system  
- Assign homework |
| Introduction to intervention and rapport building$^{ab3}$ | - Discuss homework assignments (successes/setbacks)  
- Review past events and completed homework  
- Finalize reward system  
- Introduce feelings chart and talking ladder  
- Assign homework |
| **Session 2** | - Review past events and completed homework  
- Develop peer/class chart  
- Create talking ladder  
- In session exposure activity  
- Discussion of out of session |
| Rewards, introduction to feeling chart and talking ladder$^{ab4}$ | - In session exposure activity  
- Discussion of out of session |
| **Session 3** | - Review past events and completed homework  
- Develop peer/class chart  
- Create talking ladder  
- In session exposure activity  
- Discussion of out of session |
| Introduction to Exposure$^{b5}$  
(Parent may attend dependent upon progress thus far) | - |
<table>
<thead>
<tr>
<th>Session 4</th>
<th>Exposure therapy&lt;sup&gt;b6&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Review past events and completed homework</td>
</tr>
<tr>
<td></td>
<td>- Continue with in session exposure activities</td>
</tr>
<tr>
<td></td>
<td>- Discuss out of session exposure activities (based on fear ladder)</td>
</tr>
<tr>
<td></td>
<td>- Assign homework</td>
</tr>
<tr>
<td></td>
<td>- Choose a peer from class list for next session</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 5</th>
<th>Exposure therapy in classroom&lt;sup&gt;b7 &amp; b8&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Review past events and completed homework</td>
</tr>
<tr>
<td></td>
<td>- Continue with in class exposure activities (after school with peer)</td>
</tr>
<tr>
<td></td>
<td>- Discuss out of session exposure activities (based on fear ladder)</td>
</tr>
<tr>
<td></td>
<td>- Review progress</td>
</tr>
<tr>
<td></td>
<td>- Assign homework</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 6</th>
<th>Intermediate exposure therapy in classroom with peer&lt;sup&gt;b7 &amp; b8&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Review past events and completed homework</td>
</tr>
<tr>
<td></td>
<td>- Continue with in class exposure activities (after school with peer)</td>
</tr>
<tr>
<td></td>
<td>- Discuss out of session exposure activities (based on fear ladder)</td>
</tr>
<tr>
<td></td>
<td>- Assign homework</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 7</th>
<th>Intermediate exposure therapy in classroom with teacher&lt;sup&gt;b7 &amp; b8&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Review past events and completed homework</td>
</tr>
<tr>
<td></td>
<td>- Continue with in class exposure activities (during teacher’s lunch break)</td>
</tr>
<tr>
<td></td>
<td>- Discuss out of session exposure activities (based on fear ladder)</td>
</tr>
<tr>
<td></td>
<td>- Assign homework</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 8</th>
<th>Generalization and Maintenance&lt;sup&gt;ab12&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Graphic display of progress</td>
</tr>
<tr>
<td></td>
<td>- Graduation certificate</td>
</tr>
<tr>
<td></td>
<td>- Remaining goals</td>
</tr>
<tr>
<td></td>
<td>- Relapse prevention discussion</td>
</tr>
</tbody>
</table>

Note:  
<sup>a</sup> = Parents attend session;  
<sup>b</sup> = notation of Bergman (2013) chapter (e.g., b3 corresponds to chapter 3)
Modifications to the intervention were kept at a minimum. The main change to the original IBTSM was the shortened length of treatment to accommodate constraints in the school setting. For example, Bergman’s chapter 2: *Pretreatment Assessment and Psychoeducation (Parent-Only Session)* was implemented during CBC stage two. Further, collaborations between school professionals and parents were conducted on a weekly basis by way of personal communication, communication binder, phone calls, and/or email correspondence.

**Parent, teacher, and student involvement.** High involvement from all parties was vital for intervention success in the current study. Parents were asked to attend up to five meetings at the school within a 10-week time frame. Parents were asked to complete weekly homework assignments with their child, including speaking practice, scheduling play dates with peers, and implementation of contingency management. School professionals’ participation involved attending consultation meetings and completing brief weekly speaking assignments with the child. Finally, school professionals were asked to complete the TEI-SF at the end of the intervention to assess acceptability (Appendix B). Involvement of the student participants included attending weekly one hour sessions for eight weeks with the researcher. The students were asked to complete assignments with his or her school professional, at home with a parent, and each week with the researcher. For example, students would complete “speaking assignments” such as calling the researcher to leave a voice message.
Procedures

**Phase I: IRB approval.** The University of Dayton Institutional Review Board (IRB) approved this study.

**Phase II: participant recruitment and screening.** Recruitment of participants occurred in two ways. First, individual school psychologists in the surrounding areas were contacted. A description of SM and a description of the intervention were provided as a means of identifying students in their schools who might be eligible for the study. Second, members of a regional professional association of school psychologists were contacted via a listserv utilizing this same strategy. Once the researcher was contacted by the school psychologist, approval was obtained from district administrators in the participating schools. Parent consent, school professional consent, and student assent were obtained at the initial face-to-face meetings and after completion of prescreening measures (Appendix E). If participant did not meet the criteria the researcher contacted the parent or school professional to discuss an appropriate plan to help support the child in school.

**Phase III: pre-baseline.** Pre-baseline measures and tasks included the stage one meeting with the team (parent and school professional). During the meeting, the team discussed goals and the parent and school professional were given the SMQ, SSQ, and BASC-2 questionnaires to complete before the next meeting. Lastly, a parent interview was conducted.

**Phase IV: baseline.** Baseline data were collected via SDO data collection. The team discussed results from questionnaires, goals, and formal steps for implementation of
the intervention. A psychoeducation fact sheet and phenomenology fact sheet taken from the IBTSM was discussed (Appendix F).

**Phase V: problem analysis.** Problem analysis took place during stage two meeting. Due to a rigorous school schedule and parent work commitments it was decided to combine stage two and stage three meetings into one meeting. Notes and discussion from the previous meeting were the basis for creating each participant’s intervention binder and the first session with the student.

**Phase VI: intervention implementation.** A randomly assigned baseline period was utilized to rule out naturally occurring changes in the environment. Participant start points for the intervention phase were randomly assigned by convenience based on each school’s academic calendar. For example, one participating school was held year round and had an extensive spring break. This was the deciding factor to start this participant’s intervention after the other two participants had started the intervention. The intervention occurred for 8-weeks and was implemented based on the outline created during the problem analysis phase meeting. A fixed interval start point of one week was used to determine intervention implementation.

**Phase VII: follow-up.** Post data collection included completion of the SSQ and BASC-2 TRS by school professionals and the SMQ and BASC-2 PRS by parents. Furthermore, parents and school professionals were asked to complete the TEI-SF as a measure of treatment acceptability. Qualitative discussion of intervention effectiveness, termination of the intervention, and intervention acceptability took place during this phase.
CHAPTER IV
RESULTS

The primary purpose of the current study was to examine the effectiveness of an evidence-based intervention, shortened and transported in a school setting. A multiple baseline across participants design was implemented. Results were examined based on the research questions presented regarding student outcome (increase in verbalizations within the classroom setting) and intervention acceptability from school professional.

The repeated measure (systematic direct observation; SDO) for each participant was graphed and subsequently analyzed using a visual analysis of data. A visual analysis of comparable data has been used in similar studies (Bernstein, 2010; Mitchell, Kratochwill, 2013); it is considered the best available method for evaluating single case designs (Kratochwill, et al., 2010). This included a comparison of differences of means, and visual inspection of the data (e.g., trend, level). In addition, magnitude of change statistics were used to calculate an effect size (using the no assumptions approach; Busk & Serlin, 1992). Finally, descriptive statistics were used to evaluate treatment acceptability.
Research Question 1

What is the effectiveness of modifying Integrated Behavior Therapy for Selective Mutism (IBTSM; Bergman, 2013) in a school setting?

To analyze the data for this question the researcher calculated an effect size and conducted a visual analysis of the outcome data for each participant. Visual changes in (SDO) data were analyzed through observations of trends and variability (Hunley, & McNamara, 2010). The results of the pre-post measures (SSQ, SMQ, and BASC-2) were evaluated for a reduction in scores, as through computation of a reliability change index (RCI). The RCI was used to determine whether an impact of the intervention was significant (Nunally & Kotsche, 1983), as a typical parametric statistic (e.g., t-test) is not feasible with the small sample size. The RCI aided in assessment of whether the changes in the scores are due to a naturally occurring change or something else. The RCI is calculated by dividing the difference between pre- and post-intervention scores by the standard error of measurement (SEM) and can be interpreted based on the t-scores. The RCI can only be calculated for changes on the BASC-2 TRS and PRS scores, as an SEM value is not available for the SSQ or SMQ. Thus, an examination of changes in mean scores on these measures was used to calculate a change in scores.

Visual analysis. This question was evaluated using the SDO, School-Based Observation Form for Selective Mutism, as a weekly repeated measure during the baseline period in multiple settings within the school (e.g. unstructured activities, structured activities, cafeteria, etc.) and during the intervention to demonstrate impact of the independent variable. Visual analysis of the SDO indicated no or minimal gains were made from baseline to intervention phases across participants in the area of vocal
responses (see Figure 1). In the area of non-vocal responses small to moderate gains were made (see Figure 2). In the area of trends in vocalizations observed, one participant demonstrated accelerating trends, while another participant demonstrated decelerating trends and the third participant demonstrated no change. In the area of vocal responses observed, two out of three participants demonstrated decelerating trends and the other participant demonstrated accelerating trends. In the area of vocal responses, two out of three participants demonstrated an initial change in level at the onset of the intervention based on observation data. In the area of non-vocal responses, one out of three participants demonstrated an initial change in level at the onset of the intervention based on observation data.
Figure 1

*Student Outcomes Across Participants for SDO: Vocal*
Figure 2

*Student Outcomes Across Participants for SDO: Non-vocal*
Magnitude of change. Effect sizes were calculated using the no assumptions approach (Busk & Serlin, 1992). The no assumptions approach is calculated by determining the mean of the baseline data subtracted from the mean of the intervention data, and divided by the standard deviation of the baseline. The effect size can be used to determine the magnitude of change based on the effects of the intervention. Because the intervention in the current study was targeted at increasing vocal and non-vocal responses, an increase in the effect size was predicted, thus a positive effect size indicates a positive response to the intervention. In the area of vocalizations, no gains were made, demonstrated by a mean effect size of -0.08. In the area of non-vocalizations, small to moderate gains were made with a mean effect size of 0.84. See Table 3 for effect sizes for each participant.

Table 3

Effect Sizes Based on SDO Outcome Data

<table>
<thead>
<tr>
<th>Participant</th>
<th>Vocal effect size</th>
<th>Non-vocal effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danny</td>
<td>0</td>
<td>1.89</td>
</tr>
<tr>
<td>Karen</td>
<td>-0.48</td>
<td>0.28</td>
</tr>
<tr>
<td>Nolan</td>
<td>0.40</td>
<td>0.35</td>
</tr>
<tr>
<td>Mean</td>
<td>-0.08</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Pre/post measures. Further, three measures were administered pre and post-intervention. Parents of the participants completed the SMQ and BASC-2 PRS pre-intervention and again post-intervention. School professionals completed the SSQ and BASC-2 TRS pre-intervention and again post-intervention. Scores from the SMQ and
SSQ were examined for an increase in scores, which would indicate a decrease in SM symptomology.

Pre and post measures demonstrated varied results. Mean scores of 0.87 and 0.83, respectively, for the SMQ and SSQ ratings indicate some decrease in SM symptoms as rated by respondents. More specifically, parents noted a decrease in SM symptomology while school professionals did not. See Table 4 and Table 5 for pre/post scores for the SMQ and SSQ by participant (Appendix A).

Table 4
Selective Mutism Questionnaire (SMQ) Ratings from Pre to Post

<table>
<thead>
<tr>
<th>Participant</th>
<th>Baseline</th>
<th></th>
<th>Intervention</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Nolan</td>
<td>1.24</td>
<td>0.66</td>
<td>1.35</td>
<td>0.70</td>
</tr>
<tr>
<td>Karen</td>
<td>0.71</td>
<td>0.77</td>
<td>1.11</td>
<td>0.70</td>
</tr>
<tr>
<td>Danny</td>
<td>0.65</td>
<td>0.79</td>
<td>0.47</td>
<td>0.78</td>
</tr>
<tr>
<td>Mean</td>
<td>0.87</td>
<td>0.74</td>
<td>0.98</td>
<td>0.73</td>
</tr>
</tbody>
</table>

*Note. Lower scores indicate a lower frequency of vocal/non-vocal behaviors (i.e., higher impairment)*
Table 5

*School Speech Questionnaire (SSQ)* Ratings from Pre to Post

<table>
<thead>
<tr>
<th>Participant</th>
<th>Baseline</th>
<th></th>
<th>Intervention</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Nolan</td>
<td>1</td>
<td>0.53</td>
<td>0.38</td>
<td>0.52</td>
</tr>
<tr>
<td>Karen</td>
<td>0.5</td>
<td>0.53</td>
<td>1.38</td>
<td>0.52</td>
</tr>
<tr>
<td>Danny</td>
<td>1</td>
<td>1.07</td>
<td>1.25</td>
<td>1.28</td>
</tr>
<tr>
<td>Mean</td>
<td>0.83</td>
<td>0.71</td>
<td>1</td>
<td>0.77</td>
</tr>
</tbody>
</table>

*Note.* Lower scores indicate a lower frequency of vocal/non-vocal behaviors (i.e., higher impairment)

Scores on the BASC-2 TRS and BASC-2 PRS were examined for a decrease in T-scores from pre to post intervention. The BASC-2 was used to gauge current anxiety symptomology and to explore other potential behaviors for targeting during the intervention. Both the parent and teacher forms were used. Overall, pre/post measures demonstrated varied results. Mean scores on the Behavioral Symptoms Indices (BSI) indicate respondents rated participants in the at-risk range at pre-treatment and in the average range at post-treatment. The functional communication scale, as outlined by the BASC-2, is defined as the ability to express ideas and communicate in a way others can easily understand. This is an adaptive scale that frequently falls in the clinically significant range for children with SM, as it affects their ability to communicate effectively in social settings. As rated by teachers of the participants, scores fell in the at-risk range at pre-treatment and post-treatment. As rated by parents of participants, scores fell in the clinically significant range pre-measures and scores fell in the at-risk range
post-measures. In the area of anxiety, as rated by teachers, all participants fell within the average range pre-measures. One participant demonstrated no change in anxiety. Another participant’s scores fell within the average range pre and post measure, however, there was a slight increase in the scores, which indicates an increase in anxiety behaviors. Another participant’s scores fell within the average range pre-measure and then fell within the at-risk range post-measure. In the area of anxiety, as rated by parents of participants, one participant’s anxiety fell in the low range both pre and post measures but increased slightly which demonstrates a slight decrease in anxiety behaviors. While another participant’s scores fell in the average range pre and post with an increase in scores which indicates an increase in anxiety behaviors. Lastly, one participant’s scores fell in the average range pre-measure but post measure scores decreased into low range. See Table 6 and Table 7 for pre/post scores on the BASC-2 TRS and BASC-2 PRS.

Due to the small sample size in the current study, there were statistical limitations for measuring significance of change in scores on pre/post measures. A reliability change index (RCI) was utilized to examine changes in pre/post measures for BASC-2 results (Nunally & Kotsche, 1983). This is a method for determining a significant impact of change when employing an intervention, and is computed by dividing the difference between the pre-intervention and post-intervention scores by the standard error of measurement (SEM). It is interpreted based on a t-score distribution. A t-score greater than +1.96 the difference for a change in the positive direction is considered reliable. A t-score less than -1.96 the difference for a change in the negative direction is considered reliable. The RCI was computed for the BASC-2 TRS and the BASC-2 PRS. On the BASC-PRS (see Table 8) statistically significant changes from pre- to post t-scores were
observed in 47% of the \textit{RCI} scores calculated (on scales relevant to SM). On the BASC-TRS (see Table 9) statistically significant changes from pre- to post t-scores were observed in 33% of the \textit{RCI} scores calculated (on scales relevant to SM).
<table>
<thead>
<tr>
<th>Participant</th>
<th>Behavioral Symptoms Index (BSI)</th>
<th>Anxiety</th>
<th>Somatization</th>
<th>Internalizing Problems</th>
<th>Social Skills</th>
<th>Functional Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Nolan</td>
<td>62</td>
<td>77</td>
<td>50</td>
<td>55</td>
<td>36</td>
<td>44</td>
</tr>
<tr>
<td>Karen</td>
<td>64</td>
<td>50</td>
<td>59</td>
<td>40</td>
<td>39</td>
<td>36</td>
</tr>
<tr>
<td>Danny</td>
<td>45</td>
<td>39</td>
<td>32</td>
<td>38</td>
<td>73</td>
<td>67</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>57</td>
<td>55.3</td>
<td>47</td>
<td>44.3</td>
<td>49.3</td>
<td>49</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>62</td>
<td>50</td>
<td>50</td>
<td>40</td>
<td>39</td>
<td>44</td>
</tr>
</tbody>
</table>

*Note.* Mean = 50; Standard Deviation = 10
Table 7

Behavior Assessment System for Children, Second Edition-Teacher Rating Scales Pre/Post T-scores

<table>
<thead>
<tr>
<th>Participant</th>
<th>Behavioral Symptoms Index (BSI)</th>
<th>Anxiety</th>
<th>Somatization</th>
<th>Internalizing Problems</th>
<th>Social Skills</th>
<th>Functional Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Nolan</td>
<td>61</td>
<td>66</td>
<td>48</td>
<td>48</td>
<td>47</td>
<td>54</td>
</tr>
<tr>
<td>Karen</td>
<td>66</td>
<td>53</td>
<td>58</td>
<td>66</td>
<td>46</td>
<td>54</td>
</tr>
<tr>
<td>Danny</td>
<td>44</td>
<td>44</td>
<td>42</td>
<td>45</td>
<td>73</td>
<td>100</td>
</tr>
<tr>
<td>Mean</td>
<td>57</td>
<td>54.3</td>
<td>49.3</td>
<td>53</td>
<td>55.3</td>
<td>69.3</td>
</tr>
<tr>
<td>Median</td>
<td>61</td>
<td>53</td>
<td>48</td>
<td>48</td>
<td>47</td>
<td>54</td>
</tr>
</tbody>
</table>

Note. Mean = 50; Standard Deviation = 10
### Table 8

*Reliability Change Indexes (RCI) for Pre/Post Scores on the BASC-2 Parent Rating Scales*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Behavioral Symptoms Index (BSI)</th>
<th>Anxiety</th>
<th>Somatization</th>
<th>Internalizing Problems</th>
<th>Social Skills*</th>
<th>Functional Communication*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nolan</td>
<td>-6.82</td>
<td>No</td>
<td>-1.28</td>
<td>No</td>
<td>-1.74</td>
<td>No</td>
</tr>
<tr>
<td>Karen</td>
<td>5.83</td>
<td>Yes</td>
<td>4.75</td>
<td>Yes</td>
<td>0.67</td>
<td>No</td>
</tr>
<tr>
<td>Danny</td>
<td>2.73</td>
<td>Yes</td>
<td>-1.54</td>
<td>No</td>
<td>1.30</td>
<td>No</td>
</tr>
</tbody>
</table>

*Significance on this scale indicates an increase in symptoms.

### Table 9

*Reliability Change Indexes (RCI) for Pre/Post Scores on the BASC-2 Teacher Rating Scales*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Behavioral Symptoms Index (BSI)</th>
<th>Anxiety</th>
<th>Somatization</th>
<th>Internalizing Problems</th>
<th>Social Skills*</th>
<th>Functional Communication*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nolan</td>
<td>-2.94</td>
<td>No</td>
<td>0</td>
<td>No</td>
<td>-1.67</td>
<td>No</td>
</tr>
<tr>
<td>Karen</td>
<td>6.5</td>
<td>Yes</td>
<td>-1.70</td>
<td>No</td>
<td>1.82</td>
<td>No</td>
</tr>
<tr>
<td>Danny</td>
<td>0</td>
<td>No</td>
<td>-0.68</td>
<td>No</td>
<td>-6.43</td>
<td>No</td>
</tr>
</tbody>
</table>

*Significance on this scale indicates an increase in symptoms.
Research Question 2

Is the use of IBTSM in a school setting acceptable to parents and school professionals of children with SM?

This prediction was evaluated by examining outcomes on the TEI-SF. If 80% (7/9 questions) of responses on the TEI-SF were marked as agree (4) or strongly agree (5) yielding a minimum mean rating of 3.33 as reported by school professionals, high treatment acceptability would be supported.

This question was evaluated by examining descriptive statistics for the school professionals’ scores on the TEI-SF (Appendix A). It was predicted that school professionals would find this intervention acceptable. This would be supported by 80% (7/9 questions) of responses on the TEI-SF would be marked as agree (4) or strongly agree (5) for a minimum mean rating of 3.33 as reported by school professionals (see Table 10). Participants rated each item on a 5-point scale from strongly disagree to strongly agree. Results indicated an overall mean score of 3.8 ($SD = 1.17$). School professionals generally reported this intervention to be acceptable. The majority of responses were rated as either agree or strongly agree, which denotes the school professionals found this intervention to be acceptable, would be willing to use this intervention again, liked the procedures, and overall, had a positive reaction to this intervention.
CHAPTER V
DISCUSSION

Review of Purpose and Major Findings

The purpose of the current study was to examine the transportability and acceptability of a packaged behavioral intervention, implemented in a school setting, for treating students with SM. The first prediction examined student outcomes, specifically whether there was an increase in vocalization in the school environment, a reduction of anxiety symptoms, and improved functioning. This was measured by direct observations, as well as by pre/post informant (parent and school professional) measures. The second prediction examined intervention acceptability, an important component of successful transportability. This was measured by asking school professionals to complete an intervention acceptability survey.

Overall, data varied for support of research question 1. The primary means of measuring effect of the intervention, visual analysis and effect size of the repeated measure, yielded minimal to no gains in vocal and non-vocal behavior. Repeated measures are statically more sensitive to behavioral changes as data collection occurs continually. Observational data collection requires the observer’s undivided attention, which can increase the likelihood for errors in data or observer drift. However, the interdependent observer reliability was utilized in this study for those exact reasons.
Conversely, similar studies have utilized observational data as a repeated measure (Casey, 2011; Mitchell & Kratochwill, 2013; Shriver, Segool, & Gortmaker, 2011).

Pre/post measures denote varied gains. Mean scores for the full-scale behavioral symptoms indices on the BASC-2 PRS and TRS indicate respondents rated participants in the at-risk range pre-measures and in the average range post measures. Specifically, the functional communication scale on the TRS indicated positive change. The SSQ and SMQ indicate that parents observed a decrease in SM symptomology, while school professionals did not observe the same decrease.

Results of research question 2 indicated the intervention was acceptable, as rated by school professionals. School professionals generally reported this intervention to be acceptable. The use of CBC as the service delivery model may be a significant factor in the high acceptability of this intervention.

**Interpretation of Findings Relative to Hypotheses**

The findings in this study provide insight into transportability and acceptability of a packaged behavioral intervention, implemented in a school setting, for treating students with SM. The results of this study signify a more intensive treatment may be required to reduce SM symptomology and to increase vocal and non-vocal behaviors in a school setting. Whether this intensity occurs by lengthening the treatment to the designated 20 sessions, providing intervention at an earlier age, or by providing more rigorous parent and teacher training is yet to be investigated.

Transportability can be defined as adaption of treatment to facilitate use in a school setting (Bernstein, 2011). In the Bergman, et al (2013) study the research to practice gap was proven efficacious. However, the present study had a focus on the
research to school gap. The ability to disseminate and implement a packaged intervention in a school setting is vital for effectively treating students with SM, whose symptoms primarily occur in a school setting. Although the clinic-based implementation of this intervention showed positive gains, results from this school-based study were not as promising.

Factors impacting transportability in the current study could include overly dissevering the original intervention or student factors. As previously cited, one possible effect of student response to intervention could be the length of treatment adjusted to accommodate the constraints of school schedules. Another possible factor may be participating students’ levels of SM symptomology and ranges in age. Outcomes may have been correlated with completion of home assignments and support from school professionals and classroom teachers as well.

Another factor to consider when evaluating transportability of an intervention is treatment acceptability. Acceptability of interventions is crucial to promote transportability, especially when working within a school setting (Tharinger et al., 2009). School professionals found this intervention to be acceptable and would be willing to use this intervention again. Research measuring the acceptability of IBTSM implemented the full 24 weeks in a school setting is needed to determine if the level of acceptability would be similar with a lengthier intervention.

**Limitations**

Many limitations should be considered when interpreting results. First, the modifications made to the original packaged intervention may have contributed to minimal to no gains based on effect size calculations. The small sample size limits the
generalizability of the findings. Recruitment for this study began late in the school year, which left a limited number of weeks for participation in the study, as participants were required to be enrolled in a public school to meet the study criteria. Further, the request for high involvement of participation for all parties, and limited availability for face-to-face meetings with parents and school staff may have impacted the results. Differentiations of specific behavioral components involved in the intervention sessions were not measured separately but rather as a whole. This limited the ability to pinpoint what was successful or unsuccessful for each participating child. Lastly, diversity in the sample was limited; one geographical area was used, and one researcher conducted all sessions. Replication of this study with a larger sample size, for the suggested 20 sessions, and more diversity would strengthen the generalizability of the results.

**Implications for Future Research**

More research is needed to effectively identify effective school-based intervention options for students with SM. It would be important to investigate a lengthy, more intensive intervention implemented by someone with a working relationship with parents and teachers in the school (i.e., the school psychologist). It would be interesting to examine the impact of increasing parent and teacher training as part of the treatment package on student outcomes. By lengthening and building on existing working relationships better outcomes for treating students with SM may be acquired.

As previously mentioned, early identification and intervention is essential for improving positive outcomes for students with SM. Further, transition preparation for preschoolers and their families and parent and school professional information sessions and training may be beneficial to increase awareness of SM (Busse & Downey, 2011).
Targeting younger children struggling with SM symptoms may also produce better outcomes (Oerbeck, et al., 2014).

**Implications for Practice**

School psychologists and other school professionals may utilize procedures and results described in this study with modifications. These modifications may create a more positive student outcome. First and foremost, modifications could include lengthening the treatment back to the original 20 sessions rather than the implemented eight sessions. Second, utilizing this intervention in a school setting in which one is employed, has working relationships, and, therefore, as buy-in may increase student outcomes. More evidence is needed for behavioral therapies targeted at students with SM implemented in a school setting to accurately discover what works to improve student outcomes.

**Conclusion**

SM impedes students’ academic and social development and there are numerous long-term consequences. Although this study sheds light on transportability and acceptability of a packaged behavioral intervention implemented in a school setting for treating students with SM, more research is needed to fully investigate what creates positive student outcomes. Well-supported teachers, parents, and other school professionals may create successful outcomes for students struggling with SM. More rigorous research is needed to close the research to school gap on effective school-based interventions for students with SM.
REFERENCES


Zeitschrift Für Kinderpsychiatrie, 1, 30-35.


APPENDIX A

MEASURES

Selective Mutism Questionnaire (SMQ)

Please consider your child's behavior in the last two weeks and rate how frequently each statement is true for your child.

**AT SCHOOL**

1. When appropriate, my child talks to most peers at school.  
   Always  Often  Seldom  Never

2. When appropriate, my child talks to selected peers (his/her friends) at school.  
   Always  Often  Seldom  Never

3. When my child is asked a question by his/her teacher, she answers.  
   Always  Often  Seldom  Never

4. When appropriate, my child asks his or her teacher questions.  
   Always  Often  Seldom  Never

5. When appropriate, my child speaks to most teachers or staff at school.  
   Always  Often  Seldom  Never

6. When appropriate, my child speaks in groups or in front of the class.  
   Always  Often  Seldom  Never

**HOME/FAMILY**

7. When appropriate, my child talks to family members living at home when other people are present.  
   Always  Often  Seldom  Never

8. When appropriate, my child talks to family members while in unfamiliar places.  
   Always  Often  Seldom  Never

9. When appropriate, my child talks to family members that don't live with him/her (e.g. grandparent, cousin).  
   Always  Often  Seldom  Never

10. When appropriate, my child talks on the phone to his/her parents and siblings.  
    Always  Often  Seldom  Never

11. When appropriate, my child speaks with family friends who are well-known to him/her.  
    Always  Often  Seldom  Never

12. My child speaks to at least one babysitter.  
    Always  Often  Seldom  Never  N/A
IN SOCIAL SITUATIONS (OUTSIDE OF SCHOOL)

13. When appropriate, my child speaks with other children who s/he doesn't know.

<table>
<thead>
<tr>
<th>Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

14. When appropriate, my child speaks with family friends who s/he doesn't know.

<table>
<thead>
<tr>
<th>Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

15. When appropriate, my child speaks with his or her doctor and/or dentist.

<table>
<thead>
<tr>
<th>Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

16. When appropriate, my child speaks to store clerks and/or waiters.

<table>
<thead>
<tr>
<th>Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

17. When appropriate, my child talks when in clubs, teams or organized activities outside of school.

<table>
<thead>
<tr>
<th>Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
<th>N/A</th>
</tr>
</thead>
</table>

Interference/Distress*

18. How much does not talking interfere with school for your child?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
</table>

19. How much does not talking interfere with family relationships?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
</table>

20. How much does not talking interfere in social situations for your child?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
</table>

21. Overall, how much does not talking interfere with life for your child?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
</table>

22. Overall, how much does not talking bother your child?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
</table>

23. Overall, how much does your child's not talking bother you?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
</table>

Scoring: Always = 3; Often = 2; Seldom = 1; Never = 0

*These items are not included in total score and are for clinical purposes only.
School Speech Questionnaire*

Name of Teacher Who Completed This Questionnaire:

When responding to the following items, please consider the behavior of your student, __________, and activities of the past month and rate how often each statement is true.

1. When appropriate, this student talks to most peers at school.
   Always  Often  Seldom  Never

2. When appropriate, this student talks to selected peers (his/her friends) at school.
   Always  Often  Seldom  Never

3. When called or by his/her teacher, this student answers verbally.
   Always  Often  Seldom  Never

4. When appropriate, this student asks you (the teacher) questions.
   Always  Often  Seldom  Never

5. When appropriate, this student speaks to most teachers or staff at school.
   Always  Often  Seldom  Never

6. When appropriate, this student speaks in groups or in front of the class.
   Always  Often  Seldom  Never

7. When appropriate, this student participates nonverbally in class (i.e., points, gestures, writes notes).
   Always  Often  Seldom  Never

8. How much does not talking interfere with school for this student?
   Not at all  Slightly  Moderately  Extremely

Scoring: Always = 3, Often = 2, Seldom = 1, Never = 0

* These items are not included in total score.
Treatment Evaluation Inventory Short Form (TEI-SF)

Modified Version-School Professional Form

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find this intervention to be acceptable for the child’s social-emotional concern(s).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I would be willing to use this intervention to treat the child’s social-emotional concern(s).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I believe that it would be acceptable to use this intervention without the child’s consent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I like the procedures used in this intervention.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I believe this intervention is likely to be effective.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I believe the child experienced discomfort during this intervention.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I believe this intervention was effective.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I believe it would be acceptable to use this intervention with individuals who cannot choose interventions for themselves.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Overall, I have a positive reaction to this intervention.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX B

TRAINING FOR INDEPENDENT OBSERVERS

3/11/15%

Selective Mutism

Selective Mutism (SM) is a childhood disorder characterized by the absence of speech in select environments, despite speaking in other environments (American Psychiatric Association [APA], 2013).

- Typically speak freely at home with parents and siblings.
- May communicate by gesturing or making monosyllabic sounds.
- Rare disorder, with a prevalence of 0.7 to 2% and has an early onset.
- Strong correlation with social anxiety.
- Recent change in DSM-5 classification.
Systematic Direct Observations (SDO)
- Distinction from narrative/ anecdotal observations.
  - We are measuring specific behaviors.
- The behavior is operationally defined.
- The data are collected under standardized procedures (increasing objectivity).
- The time and pace for the observations are specific.
- The data are scored and summarized in a standardized manner (increasing interrater reliability).
  (Bernstein, 2013; Selvini, 2004)

Time-based Recording
- This is often thought of as coding.
- Determine a rule for occurrence (and non-occurrence) of the behavior before beginning the observation.
- Precisely the same forever.
- Record a 1 or a 0, whatever makes most sense.
- e.g., if intervals behavior was observed divided by total number of intervals.
  - This will result in a %.
- It represents an approximation, an overall summary.
- Recorded as % of all observed intervals (of all the time).
- Limitation: you may over- or under-estimate the occurrence of the behavior.
  (Bernstein, 2013)

Partial Interval Recording
- Record if the behavior is observed at any time during the interval.
- Occurrence of the behavior is scored if it occurs during any part of the interval.
- Good to use when the behavior occurs at a low frequency.
- Use short interval lengths (e.g., 10 seconds).
- Limitation: you could over- or under-estimate the true occurrence of the behavior.
  (Bernstein, 2013)
Tips for Observations
- Two observations for each participant is needed.
- Can occur during math, music, reading, whole-group instruction, independent reading, etc.
- Can be observed across settings (e.g., classroom, specials, recess)
- Take notes off to the side about the environment: how many peers, what subject, what setting, etc.
- Each observation would be for 20 minutes.

Behavior Observations for Selective Mutism
- We will be using a form by Shelvia Segall. J Grindel, 2011.
- 15 second partial video recording system
- Code behaviors by:
  Communication behaviors: nodding, gestures, eye contact, etc.
  Stimulus Condition: student or teacher prompted and no prompts.

Table 1: Operational Definition Observational Code

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk</td>
<td>Communicate with others</td>
</tr>
<tr>
<td>Told</td>
<td>Teacher provides student with a task or direction</td>
</tr>
<tr>
<td>Show</td>
<td>Demonstrate or show something</td>
</tr>
<tr>
<td>Listen</td>
<td>Attend to speaker</td>
</tr>
<tr>
<td>Eat</td>
<td>Engage in eating activity</td>
</tr>
<tr>
<td>Sleep</td>
<td>Engage in sleeping activity</td>
</tr>
<tr>
<td>Use</td>
<td>Engage in using objects, tools, or materials</td>
</tr>
</tbody>
</table>

3/11/15
Any Questions?

Let's Practice
Resources

- 80

- 80

- 80

Contact info and SDO form

- 80

- 80

- 80
APPENDIX C

PARENT INTERVIEW

<table>
<thead>
<tr>
<th>Child’s Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent’s Name</td>
<td>Child’s DOB</td>
</tr>
<tr>
<td>Relationship to Child</td>
<td></td>
</tr>
<tr>
<td>Interviewer</td>
<td></td>
</tr>
</tbody>
</table>

**DEVELOPMENTAL FACTORS**

- Were there any problems during pregnancy?
- Was your child born on schedule?
- Were there any problems during or after labor?
- Birth weight?

<table>
<thead>
<tr>
<th>Were any of the following problems during infancy?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alertness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessive crying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavior with others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessive activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At what age did your child:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sit up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crawl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speak single words (other than mama or dada)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Put two or more words together</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Become toilet trained</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MEDICAL HISTORY**

<table>
<thead>
<tr>
<th>How would you describe you child's:</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross motor coordination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine motor coordination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please describe any chronic illness your child has had:

<table>
<thead>
<tr>
<th>Which of the following illnesses has your child had?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mumps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken pox</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whooping cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encephalitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otitis media (ear infections)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead poisoning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seizures</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Has your child had any incidents resulting in the following:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broken bones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe cuts (requiring stitches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe bruises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stomach pumped</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost teeth</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please describe any surgeries your child has had:

---

Any history of physical/sexual abuse?

Any suspicion of drug or alcohol abuse?

Currently are there any problems with:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed wetting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowel control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appetite control</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**TREATMENT HISTORY**

Has your child ever been prescribed any of the following*

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ritalin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tranquilizers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dexedrine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylerf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticonvulsants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antihistamines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did your child ever receive any of the following psychological services? (When? For how long?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual psychotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group psychotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family therapy with child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inpatient evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential treatment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SCHOOL HISTORY**
Has attendance been a problem?

Has your child ever been retained? If so, what grade?

Has your child ever participated in any of the following:
- Speech therapy
- Special education
- Tutoring

Has your child ever been suspended or expelled?

**BACKGROUND INFORMATION**
Who lives in the household with the child (relationship to child and ages)

Give a short history of the family including remarriages and step-parenting situations

How does your child get along with the other members of the household?
<table>
<thead>
<tr>
<th>Do any of the child’s siblings experience any of the following problems?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression, defiance, opposition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention, activity, impulse control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning disabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental retardation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tics or “ourettes”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does the child’s mother or anyone in her immediate family experience any of the following problems?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression, defiance, opposition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention, activity, impulse control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning disabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental retardation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tics or “ourettes”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does the child’s father or anyone in his immediate family experience any of the following problems?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression, defiance, opposition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention, activity, impulse control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning disabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental retardation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tics or “ourettes”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How easily does your child make friends?

How does your child feel about himself/herself?

Was there anything in your child’s early history that could have affected his/her emotional development? (e.g., divorce, frightening accident, surgery, death of a close relative).
Are there any major stresses your family is experiencing? (e.g., financial, marital, adjustment, health)

CURRENT BEHAVIORAL CONCERNS

Primary concerns

Other related concerns

On the average, how many times do you repeat yourself in order to have your child do what you want or request?

How much of the time are you correcting or directing your child? (over half, less than half the time)
APPENDIX D

INTERVENTION MATERIALS

TALKING LADDER

Instructions: List situations to work on, with the easiest situation at the bottom of the ladder and the hardest situation at the top.
Each time you________________________ fill in a star!
Dear Parent,

My name is Myra Thomas and I am a graduate student in the School Psychology program at the University of Dayton. I am writing to invite you to participate in a research project on selective mutism, a persistent failure to speak in certain situations despite speaking in other situations. Not speaking in social situations (e.g. in the classroom) can affect children’s grades in school and their ability to make friends. Most research links selective mutism to social anxiety and suggests early intervention is beneficial.

**WHAT IS THE PURPOSE OF THE STUDY?**

The purpose of this study is to investigate the effects of an intervention, originally developed for use in a clinic setting, when a modified version is implemented in a school setting. This project is important because if children with selective mutism can receive effective intervention in a school setting, it may increase the likelihood that they will be treated before symptoms significantly affect their academic and/or social growth.

**WHAT WILL BE DONE IN THIS STUDY?**

This project involves adapting a program developed by R. Lindsey Bergman (*Treatment for Children with Selective Mutism: An Integrative Behavioral Approach*, 2013). This program has not yet been studied in a school setting. The current study will examine the implementation of this program in a school setting; it involves parent and teacher involvement for a short period of time, which is essential to your child’s success with this intervention.

If you agree to have your child participate in this project, you will be asked to attend several meetings, help your child complete intervention assignments, communicate weekly with the researcher, complete questionnaires, and complete a survey. Following is a description of what you will be asked to complete as a part of this project.
First, I will ask you to attend a one-hour meeting in which we will discuss goals for your child to accomplish throughout the intervention. Additionally you will be asked to complete two questionnaires, one during the meeting and one before our next meeting. Next, you will be asked to attend a second meeting in which formal goals and implementation of the intervention will be discussed. In this meeting we will discuss parent training, intervention assignments, exposure sessions, and any additional information. This meeting should last 30-45 minutes.

Then, you will be asked to attend a third meeting and participate in the first intervention session with your child. The meeting will involve discussion any possible challenges with the intervention. After our brief meeting we will begin the intervention with your child. In this session we will discuss appropriate rewards that your child can earn for speaking behaviors, try an exposure assignment together, and discuss completing intervention assignments. This should all be accomplished within an hour of time.

Next, you will be asked to attend a session with your child. This may be the last session you will attend dependent on your child’s progress. This session will involve reviewing intervention assignments completed by you and your child, and introduction of intervention materials to be used during intervention assignments.

Several more sessions will be conducted in which the researcher and your child will review intervention assignment and complete various exercises. These exercises will include exposing your child to situations where speech is required and which may provoke some anxiety. Together, the researcher, teacher, and yourself will work through your child’s fears of speaking in situations and/or speaking to people.

Last, you will attend a final meeting. This meeting will involve discussing ending the intervention, the effectiveness of the program, and how acceptable the program was to you. This meeting will take approximately one hour.

Sessions will occur each week for eight weeks at your child’s school in an empty classroom or office space. The duration of each session will be approximately one hour. Sessions will occur during unstructured classroom time in order to prevent missed school assignments.

To summarize, for the duration of the research study you will be asked to meet with the researcher up to six times within a ten week time period. You will be asked to complete several questionnaires, a survey, attend a few sessions with your child, and complete several intervention assignments with your child.

**POTENTIAL RISKS AND DISCOMFORTS**

A student may not respond to the intervention and therefore may need additional services by an outside provider. Further, some of the exercises completed during the intervention involve practicing tools learned in sessions within real-life and/or imagined anxiety-
provoking situations. This may cause some psychological stress or a temporary increase in anxiety. Finally, the student may feel singled-out by meeting with the researcher. However, sessions will occur in a location where other students cannot hear or see your child, and the researcher will be discrete when taking your child out of his or her classroom.

**ANTICIPATED BENEFITS TO PARTICIPANTS**

There are a number of potential benefits related to participation in my study. First, the student may respond to the intervention and learn tools to help manage anxiety symptoms and increase speaking behavior. Additionally, you may gain knowledge and skills to help alleviate and reduce your child’s anxiety symptoms and increase speaking behavior. Also, contribution to research will be made to support evidence-based interventions.

**IN CASE OF RESEARCH RELATED ADVERSE EFFECTS**

If you experience any kind of discomfort as a result of your participation in my study, you may contact me (Myra Thomas) at 513-290-5479 or my thesis advisor, Dr. Elana Bernstein at 248-561-9424.

**CONFIDENTIALITY**

If results from this study are published or discussed in conferences, no identifying information will be included. Your child’s identity will be protected through replacing their name with pseudonyms.

**PARTICIPATION AND WITHDRAWAL**

Your participation in this study is voluntary. If you decide to participate, you can withdraw your consent and cease participation in the study at any time without discrimination or penalization. Also, the principal investigator may withdraw you from participating in this study if necessary circumstances develop.

**IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about this study you may contact: Myra Thomas, M.S., researcher, University of Dayton, 513-290-5479, myra0thomas@gmail.com or the Principal Investigator, Dr. Elana Bernstein, University Dayton, 248-561-9424, ebernstein1@udayton.edu.

**RIGHTS OF RESEARCH PARTICIPANTS**

If you have questions regarding your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at the University of Dayton: Dr. Mary Connolly, (937) 229-3493, Mary.Connolly@notes.udayton.edu.
I have read the information provided above. I have been given an opportunity to ask questions and all of my questions have been answered to my satisfaction. I have been given a copy of this form. **I certify that I am at least 18 years of age.**

Name of Participant (please print)

____________________________________________

Address

_____________________________________________________________________

*Signature of Participant*  
_________________________________________ Date___________

**SIGNATURE OF WITNESS**

My signature as witness certifies that the Participant signed this consent form in my presence.

Name of Witness (please print)

____________________________________________________

*Signature of Witness* __________________________________________

Date___________
Dear Student,

My name is Myra Thomas and I am a student at the University of Dayton. I am studying an intervention to help students who sometimes have a hard time talking in certain places, like at school, but are okay talking in other places (like at home). I am writing to see if you want to be a part of this program.

If your parents agree and you decide to be a part of, you will be asked to meet with me at your school once a week for two months. The first few times we meet your mom or dad will be with you but then later you will be asked to meet with me by yourself. We will meet in an empty classroom or office where other people cannot see or hear us. You will also be asked to complete some short assignments with your mom or dad and your teacher when other students aren’t around.

When you meet with me we will play games and decide on rewards you can work for during the program. We will discuss how your assignments are going with your parents and teacher. We will also learn about things that make you worry, complete worksheets about things that worry you, and practice doing things to help you not worry as much.

You do not have to be a part of my program if you do not want to. You can tell your teacher, your parents, or me at any time that you do not want to be a part of my program anymore. Everything we talk about will be kept confidential. This means I won’t tell anyone what we talk about. However, if you tell me that you are going to hurt yourself, someone else, or someone is hurting you I would have to tell someone like your parents or a safe adult.

Please sign the next paper and let me know if you want to be a part of my program or not. Thank you!

If you have any questions or concerns about this project you may contact me (Myra Thomas) at 513-290-5479 or my thesis advisor, Dr. Elana Bernstein at 248-561-9424.
RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at the University of Dayton: Dr. Mary Connolly, (937) 229-3493, Mary.Connolly@notes.udayton.edu.

Please complete this form and return this form to the principal investigator.

I have been told about this project and I understand it. If I have any questions I know I can ask my teacher or my parents. I also understand that I can stop participating at any time and that everything will be kept confidential.

_______________________  _______________________  _________
Child’s name    Child’s signature   Date

________ Yes, I want to participate in this project.

________ No, I do not want to participate in this project.

I certify that I have explained to the above participant the potential risks and potential benefits to participating in this study. I also certify that I have answered all questions that have been raised.

________________________________________  _________
Principal Investigator’s signature      Date
Treating Students with Selective Mutism: Application for School Psychologist

Teacher Consent Form

Dear Teacher,

My name is Myra Thomas and I am a graduate student in the School Psychology program at the University of Dayton. I am writing to invite you to participate in a research project on selective mutism, a persistent failure to speak in certain situations despite speaking in other situations. Not speaking in social situations (e.g. in the classroom) can affect children’s grades in school and their ability to make friends. Most research links selective mutism to social anxiety and suggests early intervention is beneficial.

WHAT IS THE PURPOSE OF THE STUDY?

The purpose of this study is to investigate the effects of an intervention originally, developed for use in a clinic setting, when a modified version is implemented in a school setting. This project is important because if students with selective mutism can receive effective intervention in a school setting, it may increase the likelihood that they will be treated before symptoms significantly affect their academic and/or social growth.

WHAT WILL BE DONE IN THIS STUDY?

This project involves adapting a program developed by R. Lindsey Bergman (Treatment for Children with Selective Mutism: An Integrative Behavioral Approach, 2013). This program has not yet been studied in a school setting. The current study will examine the implementation of this program in a school setting; it involves parent and teacher involvement for a short period of time, which is essential to your student’s success with this intervention.

If you agree to have your student participate in this project, you will be asked to attend several meetings, help your student complete intervention assignments, communicate weekly with the researcher, complete questionnaires, and complete a survey. Following is a description of what you will be asked to complete as a part of this project.

First, I will ask you to attend a one-hour meeting in which we will discuss goals for your student to accomplish throughout the intervention. Additionally you will be asked to complete two questionnaires, one during the meeting and one before our next meeting.

Next, you will be asked to attend a second meeting in which formal goals and implementation of the intervention will be discussed. In this meeting we will discuss intervention assignments, exposure sessions, and any additional information. This meeting should last 30-45 minutes.
Then, you will be asked to attend a third meeting that will involve any foreseeable troubleshooting and logistics of therapy sessions. After our brief meeting we will begin the intervention with your student. You may be asked to attend one of your student’s therapy sessions, which will be dependent upon your student’s success in therapy.

Several more sessions will be conducted in which the researcher and your student will review intervention assignment and complete various exercises. These exercises will include exposing your student to situations where speech is required and which may provoke some anxiety. Together, the researcher, parent, and yourself will work through your student’s fears of speaking in situations and/or speaking to people. Sessions will occur each week for eight weeks at your school in an empty classroom or office space, lasting about an hour for each session. Sessions will occur during unstructured classroom time in order to prevent missed school assignments.

Throughout the eight-week intervention you will be asked to complete intervention assignments with your student. These assignments will involve spending a few minutes with your student when no one else is present.

Last, you will attend a final meeting. This meeting will involve discussing ending the intervention, the effectiveness of the program, and how acceptable the program was to you. This meeting will take approximately one hour.

To summarize, for the duration of the research study you will be asked to meet with the researcher up to five times within a ten week time period. You will be asked to complete several questionnaires, a survey, possibly attend a session with your student, complete intervention assignments, provide behavioral observations, and fill out paperwork associated with the study.

**POTENTIAL RISKS AND DISCOMFORTS**

A student may not respond to the intervention and therefore may need additional services by an outside provider. Further, some of the exercises completed during the intervention involve practicing tools learned in sessions within real-life and/or imagined anxiety-provoking situations. This may cause some psychological stress or a temporary increase in anxiety. Finally, the student may feel singled-out by meeting with the researcher. However, sessions will occur in a location where other students cannot hear or see your student, and the researcher will be discrete when taking your student out of his or her classroom. Potential risks associated with your participation include the time needed to participate in the intervention, attend meetings, and fill out paperwork associated with the study. Last, there may a risk of the student needing additional support after the intervention has been terminated.
ANTICIPATED BENEFITS TO PARTICIPANTS

There are a number of benefits related to participation in this study. The student may respond to the intervention and learn tools to help manage anxiety symptoms and increase speaking behavior. Additionally, you may gain knowledge and skills to help alleviate and reduce your student’s anxiety symptoms and increase speaking behaviors. Also, contribution to research will be made to support evidence-based interventions.

IN CASE OF RESEARCH RELATED ADVERSE EFFECTS

If you experience any kind of discomfort as a result of your participation in this study, you may contact me (Myra Thomas) at 513-290-5479 or my thesis advisor, Dr. Elana Bernstein at 248-561-9424.

CONFIDENTIALITY

If results of research from this study are published or discussed in conferences, no identifying information will be included. Moreover, the student’s identity, as well as the your identity, will be protected through replacing names with pseudonyms.

PARTICIPATION AND WITHDRAWAL

Your participation in this study is voluntary. If you decide to participate, you may withdraw your consent and cease participation at any time without discrimination or penalization. Also the principal investigator may withdraw you from participating in this study if extenuating circumstances develop.

IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about this study you may contact: Myra Thomas, M.S., researcher, University of Dayton, 513-290-5479, myra0thomas@gmail.com or the Principal Investigator, Dr. Elana Bernstein, University Dayton, 248-561-9424, ebernstein1@udayton.edu.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at the University of Dayton: Dr. Mary Connolly, (937) 229-3493, Mary.Connolly@notes.udayton.edu.
SIGNATURE OF RESEARCH PARTICIPANT (or legal guardian)

I have read the information provided above. I have been given an opportunity to ask questions and all of my questions have been answered to my satisfaction. I have been given a copy of this form. I certify that I am at least 18 years of age.

Name of Participant (please print)
____________________________________________

Address
_____________________________________________________________________

Signature of Participant
________________________________________Date___________

SIGNATURE OF WITNESS

My signature as witness certifies that the Participant signed this consent form in my presence.

Name of Witness (please print)
____________________________________________________

Signature of Witness __________________________________________

Date___________
Dear Principal,

My name is Myra Thomas and I am a graduate student in the School Psychology program at the University of Dayton. I am writing to invite you to participate in a research project on selective mutism, a persistent failure to speak in certain situations despite speaking in other situations. Not speaking in social situations (e.g. in the classroom) can affect children’s grades in school and their ability to make friends. Most research links selective mutism to social anxiety and suggests early intervention is beneficial.

WHAT IS THE PURPOSE OF THE STUDY?

The purpose of this study is to investigate the effects of an intervention, originally developed for use in a clinic setting, when a modified version is implemented in a school setting. This project is important because if students with selective mutism can receive effective intervention in a school setting, it may increase the likelihood that they will be treated before symptoms significantly affect their academic and/or social growth.

WHAT WILL BE DONE IN THIS STUDY?

This project involves adapting a program developed by R. Lindsey Bergman (Treatment for Children with Selective Mutism: An Integrative Behavioral Approach, 2013). This program has not yet been studied in a school setting. The current study will examine the implementation of this program in a school setting; it involves parent and teacher involvement for a short period of time, which is essential to your student’s success with this intervention.

If you agree to allow teachers at your school to participate in my study, the school psychologist will be asked to refer any student who may be suspected of having selective mutism for participation. Next, parent consent for participation will be obtained and the student will complete a screening questionnaire called the Selective Mutism Questionnaire (SMQ; Bergman, Keller, Wood, Piacentini, & McCracken, 2001). If the student demonstrates a mean score of 12.99 or higher he or she will be eligible to participate in the study. If the student’s overall mean score falls below 12.99 the student will not be eligible to participate and the researcher will contact the student’s parents to discuss an appropriate plan to help support the student in school.

If the student is eligible the student’s teacher will be contacted to complete consent for participation and the project will begin with a meeting involving the child’s parent and teacher.
Intervention sessions will occur weekly for eight weeks at the student’s school in an empty classroom or office space. The duration of each session will be approximately one hour. Sessions will occur with a goal to not disrupt regular instruction in order to prevent missed school assignments. The intervention will conclude with a follow-up meeting with the child’s parent and teacher to discuss the child’s outcomes and acceptability of the program.

**POTENTIAL RISKS AND DISCOMFORTS**

A student may not respond to the intervention and therefore may need additional services by an outside provider. Further, some of the exercises completed during the intervention involve practicing tools learned in sessions within real-life and/or imagined anxiety-provoking situations. This may cause some psychological stress or a temporary increase in anxiety. Finally, the student may feel singled-out by meeting with the researcher. However, sessions will occur in a location where other students cannot hear or see your student, and the researcher will be discrete when taking your student out of his or her classroom. Potential risks associated with teacher participation include the additional time needed to participate in the intervention, attend meetings, and fill out paperwork associated with the study.

**ANTICIPATED BENEFITS TO PARTICIPANTS**

There are a number of benefits related to participation in this study. The student may respond to the intervention and learn tools to help manage anxiety symptoms and increase speaking behavior. Additionally, the teacher may gain knowledge and skills to help alleviate and reduce your student’s anxiety symptoms and increase speaking behaviors. Also, contribution to research will be made to support evidence-based interventions.

**IN CASE OF RESEARCH RELATED ADVERSE EFFECTS**

If you experience any kind of discomfort as a result of your participation in my study, you may contact me (Myra Thomas) at 513-290-5479 or my thesis advisor, Dr. Elana Bernstein at 248-561-9424.

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If results of research from this study are published or discussed in conferences, no identifying information will be included. Moreover, the student’s identity, as well as the teacher’s identity, will be protected through replacing their names with pseudonyms.
PARTICIPATION AND WITHDRAWAL

Your participation in this study is voluntary. If you decide to participate, you are able to withdraw your consent and cease participation in my study at any time without discrimination or penalization. Also the principal investigator may withdraw you from participating in this study if necessary circumstances develop.

IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about this study you may contact: Myra Thomas, M.S., researcher, University of Dayton, 513-290-5479, myra0thomas@gmail.com or the Principal Investigator, Dr. Elana Bernstein, University Dayton, 248-561-9424, ebernstein1@udayton.edu.

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SIGNATURE OF RESEARCH PARTICIPANT (or legal guardian)

I have read the information provided above. I have been given an opportunity to ask questions and all of my questions have been answered to my satisfaction. I have been given a copy of this form. I certify that I am at least 18 years of age.

Name of Participant (please print)
_______________________________________________

Address
_____________________________________________________________________

Signature of Participant
________________________________________Date__________
SIGNATURE OF WITNESS

My signature as witness certifies that the Participant signed this consent form in my presence.

Name of Witness (please print)

____________________________________________________

Signature of Witness ____________________________________

Date___________
APPENDIX F

HANDOUTS

Tips for Exposure:

- Begin with an easy, nonthreatening task with which the child will have success.
- Use a small reward when successful (i.e., sticker ticket, etc.).
- This may temporarily increase child's anxiety and children may become distressed. Tears are not uncommon, but are short lived.
- Exposure techniques are based on behavioral techniques such as stimulus fading, shaping, and systematic desensitization.
- Use positive reinforcement and shaping to work toward small successive approximations of the desired behavior: speech.
- Exposure assignments should piggyback off of each other. For example, if the child first spoke to the therapist while playing a game with the parent then the child should be exposed to the same situation with the teacher next.
- Exposure tasks are taken directly from a fear hierarchy created with the child and should gradually increase in difficulty.

Tips for Relapse Prevention:

- Be watchful for minor aversions of speaking.
- Don't talk for the child, if possible.
- Continue to provide reward intermittently.
- Acknowledge continuous effort in overcoming anxiety in speaking situations.
- If there are challenging situations coming up, prepare in advance either by practicing, role playing or modifying the situation to reduce anxiety-provoking stimuli and allow for more gradual exposure.