THE EFFECTS OF TEACHER ADMINISTERED BEHAVIOR-SPECIFIC PRAISE ON PROMOTING POSITIVE BEHAVIOR IN STUDENTS

A dissertation submitted to the Kent State University School of Lifespan Development and Educational Sciences College of Education, Health, and Human Services in partial fulfillment of the requirements for the degree of Doctor of Philosophy

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Recognized as one of the most powerful education reform initiatives in the past
decade, the No Child Left Behind Act (2001) was signed into law for the purpose of
improving student academic achievement so as to ensure a quality education for all
students, including those with disabilities. As teachers work with more students with
disabilities in the general education setting, teachers are searching for effective strategies
that will decrease problem behavior and increase learning results. The purpose of this
study was to examine the effects of teacher administered behavior-specific praise on
promoting positive behavior in students, as demonstrated by exhibiting on-task behavior
and decreasing negative behaviors, in addition to examining the feasibility of delivering it
at 1-minute, 3-minute, and 5-minute intervals in three different general or special
education classrooms.

An elementary school was selected for the site of the study. Three students
served as primary participants, and three teachers (i.e., two general education and one
special education teacher) served as secondary participants. A single-subject alternating
treatments design was used to assess the overall effects of the intervention. Results
indicated that teacher administered behavior-specific praise is an effective, easy to use
evidence-based practice which can be used by teachers for the purpose of promoting
positive academic and social behavior in students, including those who have been and are at risk for being identified as having a disability.
DEDICATION

To my husband, Henry Bloodsaw, who has provided continuous love, laughter, and support, while witnessing firsthand the many challenges and joys of this process.

In memory of my mother, Wilma Jean Lang, who instilled in me a lifelong love for learning.

To my father, Ted J. Lang, who taught me the value of examining both sides of an issue.

To my brother Paul, Sara, Ella, and Alex: Thank you for the blessings.

And finally to the Elders, Karen and Richard Patterson, who walked this path before me and have always believed in me.
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CHAPTER I
REVIEW OF LITERATURE

Recognized as one of the most powerful education reform initiatives in the past decade, the No Child Left Behind Act (NCLB; U.S. Department of Education, 2002a) was signed into law for the purpose of improving student academic achievement so as to ensure a quality education for all students, including those with disabilities (Simpson, LaCava, & Graner, 2004; Superfine, 2004). The wide reach of the initiative spans every part of the educational system, including school climate, teacher training, student curriculum, and outcomes from early education through postsecondary programming. As a result, teachers are currently challenged to meet increased standards in an effort to demonstrate professional accountability (i.e., teacher effectiveness) as it relates to increasing student achievement that is measured through high stakes testing. Although the previous educational reform initiative, Goals 2000: Educate America Act (King, 1994), was also intended to improve the quality of education, teacher training, achievement in reading, and safe schools, NCLB (2001) added a strong accountability factor that requires schools not only to achieve, but also to provide proof of said achievement.

The NCLB Act (2001) is a legal federal mandate that represents legislators’ belief that teachers have influence over both their students’ progress and achievement (Cohen-Vogel, 2005). Specifically, the Act requires that schools work with all students to close the achievement gap between student demographic subgroups (e.g., minority, disadvantaged, at-risk students), to ensure academic achievement and success. Given that
educators in both general and special education are held accountable under the NCLB Act of 2001, the scope of this mandate ranges from being responsible for creating and maintaining a safe learning environment, to demonstrating student achievement through high stakes testing (Superfine, 2004).

The Individuals with Disabilities Education Improvement Act (IDEIA) is a federal law (2004) that mandates that students with disabilities be educated in the least restrictive environment (i.e., LRE) to the maximum degree appropriate with their peers in the general education setting (Williamson, McLeskey, Hoppey, & Rentz, 2006). As a result of legislative mandates such as IDEIA (2004), the NCLB Act (2001), and Goals 2000: Educate America Act (King, 1994), many students with disabilities who were or would have been previously serviced in special education settings are now included in general education classrooms and are expected to have access to the general education grade level curriculum, in addition to having the opportunity to interact with students without disabilities (Cushing, Carter, Clark, Wallis, & Kennedy, 2009; Lee, Soukup, Little, & Wehmeyer, 2009). This increase in inclusionary education programming and access to general education has resulted in a reconsideration of roles and responsibilities for all who provide services or instruction for students with disabilities (Fisher, Frey, & Thousand, 2003). The intended goal of the reconsidered roles and responsibilities is to meet the needs of all learners, including those who have and have not been identified as having a disability. Given the expectations of the NCLB Act (2001), it is critical that preservice and experienced teachers know how their role as teachers has the potential to
influence the achievement outcomes for all students, and to meet their responsibility of teaching all students effectively.

As teachers struggle to meet the academic challenges of addressing the needs of such an increasingly heterogeneous classroom composition (Fisher et al., 2003), they also face the myriad behavioral needs of their students. Even before inclusionary efforts were fully underway, the U.S. Department of Education reported that more than half of surveyed teachers who left the field did so for reasons related to student behavior (U.S. Department of Education, 2000-01). According to Brown and Nagel (2004), student behavior, large class sizes, and the inability to adapt to unexpected changes all contribute to teacher stress. Indeed, teachers often report frustration regarding problematic student behaviors in general, such as noncompliance, off-task behavior, and aggressive and disruptive behavior which interfere with instruction and creating the feeling of a safe classroom environment (Conroy, Sutherland, Snyder, & Marsh, 2008; Gettinger, Stoiber, & Koscik, 2008). According to Kamps and Tankersley (1996), effective and early intervention is critical in the prevention of serious and persistent emotional and behavioral problems. As their roles change and teachers work with more students with disabilities in the general education setting (Kaff, 2004), teachers are searching for effective strategies that will decrease problem behavior and increase learning results (Maag, 2001).

**Inclusionary Classrooms**

One of the challenges resulting from the NCLB Act (2001) and IDEIA (2004) mandates is that many teachers lack the necessary training, resources, and expertise
required to promote the successful inclusion of students with disabilities, while both establishing and maintaining an orderly environment where academic excellence is encouraged (Griffin, Jones, & Kilgore, 2006). Because students with disabilities tend to need help learning how to be on-task and remain on-task, and how to work in a way that does not interrupt others (Gettinger et al., 2008), the prevention and management of off-task, often disruptive behaviors has become an even greater priority during the last decade for all teachers (i.e., general and special education teachers). In fact, Sindelar, Shearer, Yendol-Hoppey, and Liebert (2006) suggested that disruptive, off-task student behavior contributes to the fact that general education teachers are often resistant to embracing inclusion reform. Indeed, teachers are frequently unsuccessful in addressing disruptive, off-task student behavior in the general education environment and often refer students with such behavioral concerns for special education services (Abidin & Robinson, 2002).

The need for addressing deficits in behavioral and social skills is critical, as patterns of problem behavior often contribute to later deleterious adult outcomes (Sutherland, 2000). Such deficits are usually not isolated events but rather occur repeatedly during interactions with peers or with adults who are often in positions of authority. Causal factors for their behavioral difficulties may include punitive and inconsistent parental discipline, poor peer relationships, negative environmental influences, and interactions with teachers who are negative in nature (Sutherland, 2000). In relation to the latter and according to Henricsson and Rydell (2004), poor teacher-student relationships typically have a lasting and negative impact on school
adjustment. Moreover, research shows that students with, or who are at risk for developing emotional and/or behavioral disorders/problems, are especially impacted by teacher-student interactions in the general education classroom (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008).

In studies conducted with students with emotional and behavior disorders (Van Acker, Grant, & Henry, 1996; Wehby, Symons, & Shores, 1995), negative interactions between teachers and students were shown to result in less positive teacher attention, including teacher praise. Further complicating matters is that students with behavioral difficulties often receive minimal reinforcement for appropriate behavior, while receiving a great deal of reinforcement for negative behavior (Lago-Delello, 1998; Shores, Gunter, & Jack, 1993; Van Acker et al., 1996; Wehby et al., 1995). These interactions often afford students with behavioral concerns neither models of appropriate behavior nor strategies for dealing with conflict (Sutherland, 2000). Therefore, the interconnectedness of factors related to student-teacher interactions makes further examination of variables associated with them a critical consideration in promoting access to the general education curriculum for students with disabilities (Lee et al., 2009). That is, when teaching a student with behavioral concerns, how the teacher chooses to respond to student behavior has the potential to greatly influence successive interactions either for the positive or the negative (Snyder & McWilliam, 2003).

According to Peterson and McConnell (1996), teachers recognize the need for additional resources and interventions for students with behavioral concerns in general education classrooms, but they rarely make the transition from potential implementers of
interventions to participating interventionists through the use of empirically validated intervention processes. In fact, research has consistently shown that there are many variables that make some interventions more or less acceptable and useable by teachers. For example, the more difficult an intervention is to implement, the less likely it is to be used (McConnachie & Carr, 1997). Therefore, it is not only important to identify effective practices (i.e., interventions), but it is equally important that teachers feel prepared to carry out the interventions in their classrooms. In the following section, considerations for the identification of effective, evidence-based practices are examined, along with the variables associated with bringing such effective practices into the classroom.

Evidence-Based Practices (EBPs)

Given the demands of the teaching profession as it relates to both general and special education, the use of scientifically proven interventions, or evidence-based practices, are both promoted and required by recent legislation (Simpson et al., 2004). For example, the NCLB Act (2001) used the term “scientifically based research” more than 100 times and IDEIA (2004) highlighted the need for teachers to be taught how to use scientifically-based instructional practices to improve the academic and functional performance of students with disabilities (Cook, Tankersley, Cook, & Landrum, 2008). The term evidence-based practice (EBP; Odom et al., 2005) has recently been used to refer to educational practices that have been shown to be effective by credible research. EBPs are “interventions, strategies, and supports that have research documenting their effectiveness” (Strain & Dunlap, 2006, p. 1). According to the NCLB Act (2001), EBPs
are established through scientifically based research that “involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs” (Title IX, Part A, Section 9101 [37]). In order to meet these requirements, research must be conducted that demonstrates that an educational practice is the cause of improved student learning.

Only a few research designs allow conclusions to be drawn about whether a practice caused improved student outcomes and those that do demonstrate clear experimental control between the independent and dependent variables (see Cook, Tankersley, Cook, et al., 2008). By demonstrating experimental control, the design accounts for and rules out other alternative explanations for the change in student outcomes, and establishes that the independent variable is responsible for the change (Rumrill, Wiley, & Cook, 2010). Research designs can demonstrate experimental control (a) by systematically comparing the outcomes of a practice on a group who use the practice against a comparison (or control) group who does not use the practice (e.g., experimental, quasi-experimental) or (b) by systematically comparing individuals’ performance with the practice in place against their performance when it is not used (e.g., quasi-experimental, single-subject).

The field of special education has a history of testing the effectiveness of practices (see Odom et al., 2005) through experimental (i.e., randomly assigned group/control studies), quasi-experimental (e.g., group comparisons without random assignment, pre-test/post-test designs; see Gersten et al., 2005), and single-subject research designs (e.g., reversal, multiple-baseline, alternating treatments, changing
criterion; see Horner et al., 2005). The results of decades of research identify many practices that have demonstrated benefit for improving student outcomes (e.g., Forness, Kavale, Blum, & Lloyd, 1997; Gersten, Schiller, & Vaughn, 2000; Walker, Sprague, Close, & Starlin, 1999-2000). As Hockenbury, Kauffman, and Hallahan (1999-2000) stated, “One thing that is right about special education is that it includes devising and testing empirically validated methods of instruction that are effective with atypical students” (p. 6).

Despite the references to EBPs in legislation and recent scholarly literature, there seems to be a gap between which practices have been shown to be effective through research and their use in classrooms—both in general and special education classrooms (see Cook & Schirmer, 2003). In fact, researchers have documented that effective teaching and behavior management strategies are rarely employed in classroom settings (see Cook & Schirmer, 2003; Steinberg & Knitzer, 1992; VanAcker et al., 1996; Wehby, Symons, Canale, & Go, 1998; Wehby et al., 1995), despite the decades of studies that provide evidence of benefit to students.

There may be many reasons that teachers do not employ EBPs in their classrooms (see Cook, Smith, & Tankersley, in press), but perhaps most significantly, teachers may not know which practices are known to be evidence-based, or be trained to use them. Currently, no agreed-upon list of evidence-based practices exists for special education, although criteria and standards for determining EBPs have been developed and applied in other fields (see Cook, Tankersley, Cook, et al., 2008). For example, the What Works Clearinghouse, established in 2002 by the U.S. Department of Education
(http://www.whatworks.ed.gov/), provides an on-going list of curricular programs that have met their criteria of effectiveness in general education. The list primarily consists of published curricula, however, and not specific instructional practices. Other fields, such as school psychology (Kratochwill & Stoiber, 2002), psychology (Chambless et al., 1998), and medicine (e.g., Sackett, Richardson, Rosenberg, & Haynes, 1997), have also developed criteria that allows the research base to be summarized. Although the Council for Exceptional Children (CEC), the professional organization of the discipline of special education, is in the process of developing and applying standards and criteria for EBPs in special education (see Bruno, 2007), the field has yet to establish an inventory of EBPs for teachers to refer to in choosing intervention strategies.

Although the inventory of EBPs in special education has not been developed, CEC’s first attempt at establishing criteria for determining how to identify practices that have sufficient, positive research to promote them as evidence-based have been published (see Odom et al., 2005) and evaluated (see Cook, Tankersley, & Landrum, 2009). Specifically, the criteria require a sufficient number of quality experimental or quasi-experimental research studies be conducted on a specific practice, with the resulting summary of those studies showing positive student outcomes associated with the use of the practice. For example, in relation to the number of studies that demonstrate positive student outcomes required for the practice to be deemed evidence-based, Gersten et al. (2005) recommended at least 2 high-quality group design studies and Horner et al. (2005) recommended at least 5 single-subject studies.
Currently, scholars in the field of special education are seeking to identify EBPs for content area instruction, such as reading (e.g., Chard, Ketterlin-Geller, Baker, Doabler, & Apichatabutra, 2009), math (e.g., Montague & Dietz, 2009), and writing (e.g., Baker, Chard, Ketterlin-Geller, Apichatabutra, & Doabler, 2009) as well as for behavioral programming (e.g., Lane, Kalberg, & Shepcaro, 2009). The purpose of this study is to evaluate whether a practice that meets the requirement of the quantity of single-subject studies conducted resulting in positive student outcomes, behavior-specific praise, can be implemented in general education classrooms as well as special education classrooms.

The promotion of positive behaviors and the prevention and management of negative behaviors is critical to quality teaching. Moreover, given the legislative mandate for accountability as it relates to the widespread and necessary practice of inclusion of children with disabilities in general education classrooms, it is essential for effectively implementing educational initiatives. Consequently, effective and easy to use interventions must be adopted to meet the varying needs of all students, who in addition to academic underachievement may also experience behavioral difficulties (Harris, Oakes, Lane, & Rutherford, 2009). Research supports the use of evidence-based practices which promote positive behavior, and suggests that such interventions be used as early as possible (Conroy, Dunlap, Clarke, & Alter, 2005). Teacher administered behavior-specific praise is one example of an evidence based practice (i.e., intervention) which has the potential to influence the everyday interactions between teachers and students.
**Behavior-Specific Praise**

Behavior-specific praise is an example of an empirical intervention that is effective for developing both social and academic behaviors (Conroy, Sutherland, Haydon, Stormont, & Harmon, 2009; Gunter & Denny, 1998; Shores et al., 1993; Sutherland, Wehby, & Copeland, 2000; Sutherland, Wehby, & Yoder, 2002; Wehby et al., 1998). The benefits of administering behavior-specific praise and/or positive attention have long been documented with students of all ages (Heward, 2003). According to Lampi, Fenty, and Beaunae (2005), acknowledging student accomplishments with praise and/or positive attention takes minimal time, costs nothing, and promotes a learning environment that is supportive while encouraging students as they come to understand that appropriate behavior (and approximations of appropriate behavior) will also be acknowledged (Maag, 2001).

Unlike punitive control measures, teacher administered behavior-specific praise and/or positive teacher attention administered to students can also serve not only to motivate students, but also to assist them in resolving conflicts that occur in the classroom (Deci, Schwartz, Sheinman, & Ryan, 1981). For this reason, behavior-specific praise and/or positive attention not only serves to motivate students, but also functions as a classroom management strategy. Rather than promote a cycle of repetitive negative interactions that are coercive in nature, teacher administered behavior-specific praise uses a positive approach to motivating students (Conroy, Sutherland, Snyder, Al-Hendawi, & Vo, 2009).
When implementing behavior-specific praise, the more specific or descriptive the praise, the better. *Behavior-specific praise*, which is also referred to as *descriptive* or *labeled praise*, names the specific behavior being praised. For example, a behavior-specific praise statement such as, “You did a great job completing your assignment on time,” is more effective for changing behavior than a *non-behavior-specific praise statement*, or *general praise*, which provides a positive statement but does not specify the desired behavior for which the student is being praised (Bernhardt & Forehand, 1975; Sutherland et al., 2000). Examples of non-behavior-specific praise statements include, “Good,” “Way to go,” and “That’s right.” In contrast to non-behavior-specific praise or general praise, behavior-specific praise or descriptive praise includes telling the recipient of the praise specific facts related to the target behavior. Not only can the use of teacher administered behavior-specific praise result in an increase in the occurrence of appropriate student social behavior, but research shows that behavior-specific praise also offers the additional benefit of increasing student academic behavior, time on-task, and academic accuracy (Sutherland, 2000).

Increasing the use of teacher administered behavior-specific praise not only has the ability to target and change students’ academic and behavioral outcomes, but also to impact student-teacher relationships (Sutherland et al., 2008). Teachers have the opportunity to greatly influence the occurrence of positive behaviors, while minimizing disruptive behavior patterns of interaction. Such disruptive behavior includes but is not limited to noncompliance, negative verbal responses, and aggressive behavior. Examples
of aggressive behavior include both inappropriate physical actions and inappropriate verbal statements (Wehby et al., 1995). This simple, effective, easy to implement, always available, natural, and inexpensive (i.e., no-cost) intervention has the potential to motivate students, change the climate in a classroom from one of negativity to a positive environment, redirect confrontational and typically coercive interactions between peers and students, and provide increasing opportunities for teachers to model appropriate behavior even in stressful and potentially escalated situations (Sutherland, 2000).

Previously applied research over approximately the past 40 years has examined the use of verbally administered praise and how it has been used by teachers to affect change in student behavior (Becker, Madsen, Arnold, & Thomas, 1967; Cossairt, Hall, & Hopkins, 1973; Gable & Shores, 1980; Gunter, Denny, Jack, Shores, & Nelson, 1993; Hall, Lund, & Jackson, 1968; Kirby & Shields, 1972; Madsen, Becker, & Thomas, 1968; Sutherland & Wehby, 2001; Sutherland et al., 2000; Sutherland et al., 2002; van der Mars, 1989), in addition to how it has been used by students to affect change in teacher behavior (Alber, Heward, & Hippler, 1999; Connell, Carta, & Baer, 1993; Craft, Alber, & Heward, 1998; Harchik, Harchik, Luce, & Sherman, 1990; Morgan, Young, & Goldstein, 1983; Sherman & Cormier, 1974; Stokes, Fowler, & Baer, 1978). Beginning in the late 1960s, and continuing into the early 1970s, researchers studied the effect of teacher-administered praise used to reinforce appropriate student behavior, including study behavior of primary level students enrolled in general education settings (e.g., Hall et al., 1968; Madsen et al., 1968), as well as to increase academic accuracy (i.e., correct
response rate) of seventh grade students with off-task behaviors (e.g., Kirby & Shields, 1972).

For example, Hall et al. (1968) introduced verbal teacher attention to one student in first grade and five students in third grade who were enrolled in a general education class. All six students displayed disruptive behavior which was described as non-study behavior including playing, laughing, laying head on desk, talking, out-of-seat, and tapping pencil. Following baseline, teacher participants were shown students’ study rates plotted on a graph. Additionally, teachers were told of the benefits of behavioral reinforcement and were provided with an understanding of the basics as it relates to social reinforcement. Then teachers selected a student participant who was chosen because he or she displayed disruptive behavior and lacked appropriate study behavior. A reversal single subject research design was used to analyze the effect of positive teacher attention (i.e., verbal statement to student, followed by a pat on the back) on students’ study behavior. The experimenter provided teacher participants with a visual prompt when students were engaged in study behavior. Teachers then administered positive attention.

Once a stable rate of study behavior was established during the first treatment phase, then positive teacher attention was no longer prompted and a reversal phase was implemented. Positive teacher attention was reinstated during the second treatment phase. Results indicated that when positive teacher attention was administered, the study behavior of all student participants also increased. Researchers emphasized that teacher participants had no prior experience applying behavior reinforcement principles, yet they
did so successfully, in overcrowded classrooms. Furthermore, teachers reported that they initiated the use of positive attention with other students who were not included in the study, thus attesting to the feasibility of use regarding positive teacher attention as an intervention for increasing student study behavior.

During the 1970s, researchers reported favorable results when praise was paired with feedback, and was administered to third and fourth grade general education teachers, as they worked to increase their students’ on-task (i.e., attending) behavior (Cossairt et al., 1973). A multiple-baseline design was used in the Cossairt et al. study to introduce two different treatments (i.e., experimenter’s instructions and feedback, and feedback plus social praise) for the purpose of increasing teacher administered praise to students’ who were identified by their teachers (i.e., 4 students selected per teacher, yielding a total of 12 student participants) because of their low attending and instruction-following behavior.

Two of the three teachers were given instructions (i.e., antecedent manipulation) regarding the value of praising students and feedback (i.e., consequence manipulation) regarding their percent of praise administered to students. The third teacher participant received a combination “Package” treatment (i.e., experimenter feedback along with experimenter administered social praise provided to the teacher participant). Results indicated that the combination treatment package (i.e., feedback combined with social praise) resulted in the greatest increase of teacher administered praise. The greatest increase in students’ on-task (i.e., attending) behavior also occurred when the package treatment was in effect.
During the next 25 years, the emphasis in research on behavior-specific praise broadened from a focus of studies that engaged teachers in implementing behavioral praise to shape student behavior, to an emphasis in students recruiting praise and/or attention from their teacher (Sherman & Cormier, 1974; Stokes et al., 1978). For example, a multiple-baseline design was used in the Sherman and Cormier study (1974) to investigate whether two fifth grade students’ behavior influenced their teacher’s behavior. Daily conferences for the purpose of instruction and informal feedback were held between the investigator and students, during which time students reviewed their progress and were reminded of the benefits of improving their behavior.

Results indicated that instruction and feedback alone did not lead to changes in students’ behavior, rather changes in students’ appropriate classroom behavior were minimal when the instruction and informal feedback components of intervention were used. In addition, most of the teacher’s attention and comments regarding student behavior were negative in nature. Results were favorable, however, when the tangible reward, monitoring, and formal feedback were introduced to the students. Not only did students’ appropriate classroom behavior increase, but so too did the teacher’s comments regarding student behavior which were positive. According to Sherman and Cormier (1974), two additional benefits of shifting the intervention focus from the teacher, to students, included efficiency and cost of treatment.

A multiple-baseline design was also used in Part I of the two-part Stokes et al. (1978) study, with four typically developing preschool students (i.e., ages 4–5) who were first taught how to judge their work, and secondly, how to recruit praise by cueing their
teachers for their good work, through instructions, role-playing, feedback, and praise. For example, after work was completed, students would make statements (e.g., “Look how much I’ve done,” or “Does this look right?”) for the purpose of recruiting praise (e.g., “That looks good”) from their teachers. Results from Part I of the study showed that students increased the number of cues delivered to their teachers after training occurred. Although there was a decrease in students’ cueing of teachers upon generalization, it was still an increase from baseline. Not only did students’ cueing increase, but the average number of praise statements administered by teachers to students each day also increased.

A multiple-baseline design was also used in Part II of the Stokes et al. (1978) study, which included four different students (i.e., age 6) who had completed Kindergarten, but were referred to summer school because of academic and behavioral problems. Students received the same training as in Part I of the study, but with the additional component of teaching students to raise their hand and wait to be called on, before initiating any cueing of teachers for praise. Results from Part II of the study showed that students increased the number of cues delivered to their teachers for recruitment of praise. Similar to Part I, results also showed an increase in teacher administered praise to students. This study demonstrated that there is a community of natural reinforcement that is accessible in the school setting. Such a community provides an opportunity for students with behavior problems to initiate and engage in positive interactions with their teachers. Results showed that elementary students enrolled in general education could prompt teachers for verbal reinforcement.
The use of behavior reinforcement was expanded upon in the early 1980s with the addition of studies (Gable & Shores, 1980; Morgan et al., 1983; van der Mars, 1989) that included students with EBD (i.e., emotional and/or behavioral disorders). Morgan et al. (1983) used a multiple-baseline design across three male student participants, ages 10–12, who were in fourth and sixth grade. All three students were in a self-contained class for students with EBD, and travelled to a general education classroom for approximately one hour a day of instruction. Treatment consisted of three phases of training, followed by implementation of the full program in the general education setting. Training focused on teaching students to prompt their teacher for help in the general education setting, praising the teacher after receiving help, prompting the teacher for approval during the lesson, and finally thanking the teacher for approval gained. Results showed that when students engaged in the behaviors for which they had received training, the amount of teacher attention and praise increased.

In the late 1980s, the focus of intervention was switched back to the teacher when van der Mars (1989) explored the use of teacher administered, specific praise for decreasing the off-task behaviors of three second-grade students in a physical education program. A multiple baseline across subjects design was used. A functional relationship was demonstrated each time that the teacher praise intervention was initiated, and students’ off-task behavior immediately decreased. Overall, results indicated that teacher administered verbal praise was an effective treatment for decreasing students’ off-task behavior. According to van der Mars, training on the effective use of specific praise by teachers has the potential to decrease inappropriate behavior.
During the 1990s, the focus of intervention was on student self-assessment (Connell et al., 1993) and recruitment training (Alber et al., 1999; Connell et al., 1993; Craft et al., 1998; Harchik et al., 1990) as the two primary means for increasing the use of teacher administered verbal praise. Such studies included students from both general and special education, ranging in age and grade level from preschool to early teens. Students also ranged in disability category and included those with autism (Harchik et al., 1990), behavioral problems (Connell et al., 1993), developmental disabilities (Connell et al., 1993; Craft et al., 1998), and learning disabilities (Alber et al., 1999).

In the Connell et al. (1993) study, a multiple-baseline design with a reversal condition was used to examine a self-management treatment package (i.e., self-assessment and recruitment of teacher praise) that was taught to four 4-year-olds who were enrolled in an early intervention preschool program for students with developmental delays. Results showed that when students paired self-assessment with recruitment, their on-task behavior, recruitment levels for teacher praise, and teacher praise levels all increased. Not only did all three behaviors increase, but such increases were maintained.

In another study, Gunter et al. (1993) examined the effect of teacher administered praise on the task-engagement (i.e., on-task behavior) of students with behavioral difficulties. Results showed that when teacher praise increased, students’ inappropriate and disruptive student behaviors decreased.

Later, Alber et al. (1999) examined the effect of student recruitment training on the rate of praise administered by general education teachers to students with learning disabilities, in inclusive classrooms, along with teacher provided instructional feedback,
and student academic work productivity. Recruitment training began with the student raising his or her hand, and either waiting quietly to be recognized by the teacher, or proceeding to the teacher’s desk to ask a question or prompt the teacher for feedback. A multiple baseline across subjects design was used with four middle school students. Results indicated that the rate of positive teacher attention increased once students were taught how to recruit teacher praise during the intervention phase. Although maintenance levels of instructional feedback decreased from the levels achieved during intervention; levels were still an improvement over baseline levels. Academic work productivity also improved.

In 2000, the focus of intervention switched once again to the teacher, when Sutherland et al. (2000) investigated the effect of varying rates of teacher administered behavior-specific praise on students’ on-task behavior. An ABAB withdrawal design was used and participants included nine fifth-grade students with EBD and their teacher who had three years of teaching experience. During baseline, the teacher’s typical behavior was observed. Baseline data were collected on the frequency of teacher administered behavior-specific praise statements and non-behavior-specific praise statements. Students’ on-task behavior was recorded using momentary time-sampling. Results from baseline showed that the mean rate of non-behavior-specific praise statements was 3.3, nearly three times the mean rate of behavior-specific praise statements which was 1.3. After baseline, but prior to the first intervention session, the teacher was given feedback on the number of behavior-specific praise statements administered to students during baseline. In addition, the benefits of behavior-specific
praise were shared with the teacher before a criterion level of behavior-specific praise was determined by the experimenter and teacher participant.

Before each intervention data collection session, the experimenter met with the teacher participant who was reminded of the criterion goal for administering behavior-specific praise. An example of such behavior-specific praise was also provided to the teacher participant. After each data collection session, the teacher received feedback and praise from the experimenter on the number of behavior-specific praise statements administered to the students, in addition to sharing specific examples from the data collection session. Results from the first intervention phase showed that the mean rate of teacher administered behavior-specific praise statements increased from 1.3 in baseline to 6.7 during intervention.

When the withdrawal phase was instituted, all feedback which had been previously provided to the teacher during intervention was withdrawn. No meetings were held with the teacher before or after data collection sessions. Results showed that the mean rate of teacher administered behavior-specific praise statements decreased from 6.7 during intervention, to 1.7 when the intervention was withdrawn.

The intervention was reintroduced when the second intervention phase was implemented. During this time, the experimenter once again met with the teacher before each data collection session to remind the teacher of the criterion for administering behavior-specific praise. Similar to the first intervention phase, the experimenter also met with the teacher after each data collection session to provide feedback on the frequency of teacher administered behavior-specific praise and to offer specific examples
of such praise. Results showed that the mean rate of teacher administered behavior-specific praise statements increased once again, from 1.7 during the reversal phase to 7.8 during the second intervention phase.

Teacher use of non-behavior-specific praise statements and student on-task behavior were also reported. The mean rate of non-behavior specific praise statements was 3.3 during baseline, and increased to 3.7 during the first intervention phase. A decrease from 3.7 during the first intervention phase to 1.7 occurred when the reversal was implemented. Finally, the mean rate of non-behavior-specific praise increased from 1.7 during the reversal to 4.7 during the second intervention phase. The mean percentage of student on-task behavior was 48.7 in baseline, and increased to 85.6 during the first intervention phase. When the intervention was withdrawn, the percentage of on-task behavior decreased to 62.2, and finally it increased to 83.3 when the intervention was reinstated. Overall, findings indicated that teacher administered behavior-specific praise and student on-task behavior both increased when feedback was provided to teachers during intervention.

Sutherland et al.’s (2000) findings indicated that as teacher administered behavior-specific teacher praise increased, so too did the on-task behavior of students. Sutherland and Wehby collaborated on two more studies, and one in association with other researchers to investigate the effect of teacher administered behavior-specific praise and/or positive attention (Sutherland & Wehby, 2001; Sutherland et al., 2002). Participants in all three of these studies were in self-contained classes for students with EBD. Findings showed that when teachers increased their use of behavior-specific verbal
praise, opportunities for students to respond also increased (Sutherland et al., 2002). Similarly, as teachers decreased the amount of reprimands administered to students, the correct number of responses from students increased (Sutherland & Wehby, 2001). Results also showed that when teacher administered behavior-specific praise increased, the on-task behavior of students increased as well. Perhaps central to the possibility of continued use, teacher participants reported that teacher administered behavior-specific praise was indeed a feasible intervention (Sutherland & Wehby, 2001).

Given the abundance of evidence that strongly supports the use of teacher administered behavior-specific praise as an effective intervention which has the potential to promote appropriate interactions between students and teachers, it is surprising to learn that behavior-specific praise is used infrequently in classrooms (Conroy et al., 2008; Lannie & McCurdy, 2007; Sutherland et al., 2000). Behavior-specific praise is an empirical intervention that offers the advantages of facilitating a positive and supportive learning environment (Conroy et al., 2009), as well as increasing specific classroom behaviors which are necessary for student success (Lampi et al., 2005). Indeed, teacher administered behavior-specific praise is a valuable intervention that can dramatically affect classroom management and the establishment and maintenance of a positive and productive classroom environment (Fullerton, Conroy, Correa, & Fullerton, 2007). For the current study, a single-subject research design is used to examine the effects of teacher administered behavior-specific praise on promoting positive behavior in students in both general and special education settings.
Single-Subject Research Designs

Single-subject research designs allow for assessing implementation of interventions in applied settings and investigating outcomes on student behavior. According to Alberto and Troutman (2009), single-subject research (SSR) designs address research questions that pertain to a specific participant or group of participants and are preferred among applied behavior analysts. Such designs are used to investigate problems faced in practice and in theory, and to evaluate the effectiveness of specific interventions on a specific target behavior. SSR designs systematically manipulate the independent variable (i.e., intervention) while simultaneously assessing the occurrence of the dependent variable frequently and over time.

Examples of questions that SSR designs may answer include, but are not limited to, those regarding effectiveness of interventions and levels of intervention needed to influence meaningful change. For example, research questions related to teacher delivery of behavior-specific praise that have been addressed through SSR include, “What effect does the use of teacher attention and praise have on managing behavior problems in elementary classrooms,” “What effect does recruitment training have on the accuracy with which students complete their assignments,” and “What effect does feedback and praise given to teachers for administering praise have on students’ attending behavior?”

Single-subject research designs are defined as quasi-experimental designs in which the unit of analysis is the individual participant or group, and are frequently used in clinical or applied settings where it is often difficult to secure large samples of participants (Gliner & Morgan, 2000). Often referred to by other names, SSR is
frequently used to examine the effects of educational practices on individual learners (or groups of learners that compose one unit), and is also recognized as single-subject design, single-case experimental research, one-subject experiments, \( N = 1 \) research, and single-factor within-subjects design (Horner et al., 2005). Such designs are frequently used for drawing conclusions about questions and problems that occur in the school setting (Hittleman & Simon, 2002). Examples include studies that focus on improving students’ academic and behavioral skills (Baker et al., 2009; Chard et al., 2009; Montague & Dietz, 2009; Sutherland et al., 2000; Tankersley, Harjusola-Webb, & Landrum, 2008), in addition to also improving the instructional behaviors of teachers (Cook, Landrum, Cook, & Tankersley, 2008).

There are specific characteristics that all SSR designs have in common, including studying participants’ behavioral outcomes in at least two experimental phases: a baseline phase and a minimum of one treatment (i.e., intervention) phase. Data in SSR designs are analyzed individually for each participant unit (e.g., an individual or more than one individual who are considered one unit; Leary, 2001) for all phases and then results are compared between those conditions for the subject(s). Baseline measurement serves as a form of pretesting in the SSR design by allowing the researcher to observe performance prior to intervention (Hittleman & Simon, 2002). Baseline data represent the occurrence of the behavior in its applied setting, in its typical level of occurrence prior to intervention. The conditions of baseline do not represent the absence of any treatment; instead, baseline represents the status quo—the usual occurrence of the behavior in the natural environment without the intervention being tested. The treatment phases in SSR
designs are typically initiated after the baseline data condition has determined the initial level of the dependent variable. The treatment phase then introduces the intervention into the same setting, under the same environmental conditions, and measurements of participant outcomes are taken with the intervention in place (Gast, 2010).

Comparisons of data across baseline and intervention phases provide the basis for establishing whether there is in fact a functional relationship between the independent and dependent variables (Horner et al., 2005). Reliable changes in the dependent variable in the presence (intervention phase) and absence of the intervention (withdrawal phase) determine the extent to which changes in the dependent variable can be attributed to the intervention. Replication demonstrates that the introduction of the intervention initiates a favorable change in behavior, and likewise, the removal of the intervention brings about a return to baseline status (Cooper, Heron, & Heward, 2007). Once a functional relationship is demonstrated, future studies are conducted to rule out possible alternative explanations for the change in behavior. As shown in Table 1, SSR designs are frequently used to replicate and extend the findings resulting from previous studies.

**Objectives of SSR Designs**

There are four primary objectives to any SSR design. First, SSR evaluates the effect of interventions with an individual case (e.g., single case, one subject, or one group; Schloss & Smith, 1998). By comparing outcomes on dependent measures during baseline to intervention conditions, the effectiveness of the independent variable can be determined. Second, SSR demonstrates that a functional relationship exists between the independent and dependent variables through repeated exposure to the intervention (i.e.,
Table 1

Some SSR Studies on the Effects of Praise/Attention

<table>
<thead>
<tr>
<th>Authors (year of publication)</th>
<th>Type of SSR Design</th>
<th>Participants</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hall et al. (1968)</td>
<td>Reversal</td>
<td>1 student (1st grade)</td>
<td>Student study behavior</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 students (3rd grade) with disruptive behavior</td>
<td></td>
</tr>
<tr>
<td>Cossairt et al. (1973)</td>
<td>Multiple baseline across subjects</td>
<td>4 students (3rd grade)</td>
<td>Student attending (on-task) behavior</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 students (4th grade)</td>
<td></td>
</tr>
<tr>
<td>Sherman &amp; Collier (1974)</td>
<td>Multiple baseline across behaviors</td>
<td>2 students (5th grade) with behavior problems</td>
<td>Teacher attention (verbal comment) to students</td>
</tr>
<tr>
<td>Stokes et al. (1978)</td>
<td>Multiple baseline across subjects</td>
<td>4 typical students (preschool)</td>
<td>Teacher praise and reinforcement (for student work)</td>
</tr>
<tr>
<td>Morgan et al. (1983)</td>
<td>Multiple baseline across subjects</td>
<td>4 students (Kdg) with learning and behavior problems</td>
<td></td>
</tr>
<tr>
<td>van der Mars (1989)</td>
<td>Multiple baseline across subjects</td>
<td>3 students (4th, 6th grade) with behavioral disorders in mainstreamed classroom</td>
<td>Teacher praise/attention (for student work)</td>
</tr>
<tr>
<td>Sutherland et al. (2000)</td>
<td>Reversal</td>
<td>9 students (5th grade) with emotional/behavioral disorders in self-contained class</td>
<td>Student on-task behavior</td>
</tr>
</tbody>
</table>

continuous assessment). To establish that an independent variable is responsible for changes in the dependent variable, researchers seek to establish that there is a systematic, or functional, relationship between variables (Tankersley et al., 2008). Research participants provide their own comparison between their performance during baseline and intervention conditions (as opposed to group experimental studies which compare treatment to nontreatment groups’ outcomes). For example, a researcher might measure
students’ on-task behavior when teachers give frequent praise for students’ performance, and compare that level of on-task behavior to its occurrence when little or no praise is given. Researchers who use single-subject research methods thus study individuals’ learning or behavioral outcomes under at least two experimental conditions: a baseline condition and an intervention condition (Horner et al., 2005; Tankersley et al., 2008).

A third objective of SSR is to allow for visual inspection of the data across treatment conditions for each subject (Kazdin, 1982). Even though SSR results can be examined through statistical methods, the traditional way of assessing intervention effectiveness is through “visual inspection,” a process with systematic rules for evaluating the graphic representation of continuous data gathered for baseline and intervention conditions. As stated previously, comparisons are made within subjects; what is assessed is how each individual subject’s dependent variable changed from baseline to intervention phases. The within-subjects changes in performance are typically evaluated according to strength or magnitude of the target behavior (mean and level) across phases, and the rate of these changes (trend and latency; Kazdin, 1992).

Finally, SSR permits drawing inferences about behavior change based on repeated assessment over time (Lloyd, Tankersley, & Talbott, 1994). By ruling out alternative explanations or extraneous variables so as identify the specific cause for the change, such designs allow the investigator to determine why a change in performance or behavior has occurred (Kazdin, 2011). The stronger the experimental design, the more thorough the explanations ruling out alternative causes, with the goal being to prove with the highest certainty, that the independent variable (i.e., intervention) is the cause for the change. By
systematically initiating and withdrawing the intervention over time, the investigator can determine if in fact the intervention (i.e., independent variable) does have an effect on the dependent variable and can also rule out other explanations for changes in the behavior (Leary, 2001).

**SSR Designs**

Subjects in SSR studies receive and participate in all phases of the study and their target behavior(s), the dependent variables, are repeatedly measured (i.e., within subjects) as continuous assessment is a critical requirement of SSR designs (Gliner & Morgan, 2000). Four specific SSR designs are: reversal design (also termed A-B-A-B design, withdrawal design), changing criterion design, alternating treatments design, and multiple-baseline design (Kazdin, 1982, 1992). These research designs accommodate different types of research questions, methods for how data are collected and analyzed, and for different ways of demonstrating that a functional relationship exists (Kazdin, 1992). In SSR designs, the intervention is typically administered and withheld several times during the study (Gliner & Morgan, 2000) to evaluate the functional relationship between the dependent and independent variables. Three factors in particular are required for demonstrating that a functional relationship exists: prediction (demonstrating a consistent level of response of the target behavior over time forecasts how the behavior will occur in the future without changes in the environment), verification (multiple evidences that the target behavior performs reliably in the presence or absence of the independent variable), and replication (repeating the recording of data in the absence of
the intervention and then again when the intervention is reinstated; Alberto & Troutman, 2009).

**Reversal ABAB.** The reversal design consists of four phases (i.e., A-B-A-B) and demonstrates a functional relationship by comparing baseline data (A phase representing data collected without intervention in place) to data collected during treatment (B phase). By initiating (i.e., the first phase B) and withdrawing the intervention (i.e., the second phase A), the performance of the target behavior changes in response to the withdrawal of the intervention. The extent to which the dependent variable changes in relation to the withdrawal and implementation of the independent variable demonstrates the presence of a functional relationship. The reversal design is often chosen because it is easy to use for investigating the effectiveness of one intervention while ruling out the presence of any confounding variables that might otherwise serve to explain a change in the target behavior.

Although the reversal design is one of the most commonly used SSR designs, the reversal design does have two limitations (Gliner & Morgan, 2000; Kazdin, 1992). For ethical reasons, a reversal should not be used if the target behavior is dangerous (e.g., hitting self or others, pica) or if the target behavior is a learned skill (e.g., reading, driving a car, throwing a ball). The former may present physical threats to participants’ safety, while the latter may be impossible to remove during the withdrawal phase (Alberto & Troutman, 2009). In other cases interventionists are often hesitant to remove what has already been proven as an effective treatment program, while risking the return of the inappropriate behavior.
Sutherland et al. (2000) used an ABAB withdrawal design to analyze the effect of teacher administered behavior-specific praise on students’ on-task behavior by reversing between the two conditions of baseline and BSP intervention. The research questions were, “What is the effect of an observation-feedback intervention on the rate of a teacher’s behavior-specific praise administered to students with EBD,” and “What is the effect of increased teacher administered behavior-specific praise on the on-task behavior of students with EBD?” On-task behavior was defined as following the directions of the teacher, paying attention to both peer and adult speakers, and working on assigned tasks. The participants included one teacher who had three years of teaching experience and taught nine students with EBD. Students were ages 10 or 11, and were African American or Caucasian. The study took place in the students’ fifth-grade middle school self-contained classroom. The teacher’s behavior of providing behavior-specific praise was assessed under non-feedback (baseline) and feedback (intervention) conditions. A teacher-assistant also worked regularly with the class, and was in the classroom during data collection.

During baseline, which lasted ten days, the teacher administered praise in a manner that was typical for her personal style (i.e., nonspecific behavior praise; Sutherland et al., 2000). During intervention, however, the teacher received feedback on the use of behavior-specific praise that occurred during data collection, and student on-task behavior simultaneously increased. In addition, the teacher was informed of the benefits of such behavior-specific praise in regards to the on-task behavior of students. Prior to each data collection session during intervention, the teacher was reminded of the
goal and follow-up occurred immediately after each intervention session to discuss the rate of teacher administered behavior-specific praise. When the intervention was withdrawn, the feedback was also withdrawn. The results indicate that there was a clear increase in students’ on-task behavior when the teacher was provided feedback on her use of behavior-specific praise, and a clear decrease of on-task behavior when the teacher was not provided feedback about her use of behavior-specific praise. Finally, when the behavior-specific praise intervention was reintroduced, students’ on-task behavior immediately increased. A functional relationship was demonstrated each time students’ on-task behavior changed in accordance with the intervention being applied or withdrawn.

**Changing criterion.** The changing criterion research design is particularly useful for investigating behaviors that require shaping (that is, systematic teaching that differentially reinforces successive approximations of the target behavior) in order to reach the desired level of performance (Kazdin, 1992). Shaping may be needed to accelerate (e.g., on-task, social reciprocal play) or decelerate (e.g., rate of talking out, errors in math computation) the occurrence of behaviors to reach successful performance. Throughout intervention, criterion are set systematically higher (to shape positive behavior) or lower (to shape negative behavior) once the level of performance has met the initial criterion. For example, De Luca and Holborn (1992) evaluated the effectiveness of a reinforcement program on the pedaling behavior of six 11-year-old males, three of whom were overweight. The first subphase of intervention set the criterion to meet as 15% more than each individual’s baseline performance level. Once
the individual met his criterion and his level of performance remained stable during the 8 days of that subphase, he was rewarded for his accomplishment. The second subphase was then introduced and the criterion was based on the newly established mean level of the previous subphase plus 15%. Again, once performance was stable in the 8 days of the new subphase, the reward was provided and the new criterion was set. The criterion for reward was systematically increased over time and the results showed that all boys increased their levels of pedaling and benefitted from the intervention. In fact, two of the three overweight boys approximated the pedaling rate of the nonoverweight boys by the end of intervention.

The presence of a functional relationship is established as the target behavior continues to increase or decrease in the desired direction with the onset of each successive subphase in which a new criterion is introduced (Alberto & Troutman, 2009; Barlow & Hersen, 1984; Kazdin, 1992). The advantage of the changing criterion design is that the intervention is never withdrawn, thus making the design highly desirable for ethical and safety reasons. The disadvantage of using the changing criterion design, however, is that the manipulation of target behaviors occurs over an extended period of time, thereby ruling out this design for investigative situations where immediacy of behavior change is an issue (Kazdin, 1992).

In another example of a changing criterion design, Deitz and Repp (1973) investigated the occurrence of high school students’ social conversations during times when they were supposed to be engaged in academic discussions. Baseline data were collected for six sessions, during which time students continued to speak socially during
classroom activities. On average, students engaged in 5–8 subject-changes per session of baseline. The intervention was applied in phases two through five and consisted of students receiving an award (i.e., free day) when they met the criterion level established for that particular phase, thus demonstrating students’ ability to meet or exceed the preestablished criterion level of performance. The criterion level of performance was set at 5 or fewer subject-changes per session for the treatment phase. Not only did students meet the criterion level during each phase, but they often exceeded it. In the third phase, the criterion level was lowered to three or fewer subject-changes. In the fourth phase, the criterion level was lowered to two or fewer subject-changes. Finally, in the fifth and last treatment phase, the criterion level was set at zero and no instances of the behavior occurred. A sixth phase was implemented for the purpose of implementing a reversal (i.e., return to baseline). The average number of subject-changes increased from 0 to 3.67 when the intervention was withdrawn.

Alternating treatments. Sometimes referred to as a multiple schedule design, alternating conditions design, or multi-element baseline design, the defining feature of an alternating treatments design is the use of more than one intervention to affect change in a single dependent variable (Barlow & Hayes, 1979; Barlow & Hersen, 1984; Kazdin, 1992). In alternating fashion, each intervention is introduced to the participant(s) and results should allow for comparison of effects of the different interventions. For example, Kazdin and Geesey (1977) used an alternating treatments design to investigate the effect of different ways of earning reinforcers for students with disabilities. Baseline data were collected for two students who exhibited frequent, disruptive behavior. During
intervention, the participants were told that they could earn rewards for accumulating marks on a card for on-task behavior. However, the first treatment specified that only the participants would receive the rewards, and the second treatment specified that the participants and their classmates would receive the rewards. Graphic analysis showed that on-task behavior increased more when the participants earned rewards for the class rather than only for themselves.

The advantage of using an alternating treatments design is its efficiency (e.g., speed, accuracy) in identifying the most effective intervention (Barlow & Hersen, 1984; Kazdin, 1992). Because there is no replication phase, however, establishing a functional relationship is difficult. One accommodation for addressing this limitation is to implement a third treatment phase, with the most effective treatment serving as the intervention during this phase. By adding in the third phase, alternative explanations for changes in the dependent variable can be ruled out and another demonstration of experimental control can be established. This process increases confidence that the manipulation of the independent variable is responsible for changes in the dependent variable (Kazdin, 1992). However, the fractionation of data during the intervention phase is a key consideration for establishing a functional relationship in alternating treatments designs (Barlow & Hersen, 1984; Kazdin, 1992). That is, once the data path of one intervention separates from the data path of another intervention, the treatment is said to be fractionated (i.e., effective).

**Multiple-baseline.** With the multiple-baseline design, a functional relationship is demonstrated by successively applying the intervention to multiple target behaviors,
settings, or subjects over time (Kazdin, 1992). By showing that the target behaviors do not change until the intervention is introduced, a functional relationship is demonstrated (Baer, Wolf, & Risley, 1968). According to Alberto and Troutman (2009), the advantage of the multiple baseline design is that the effect of the intervention (i.e., independent variable) can be simultaneously analyzed on more than one dependent behavior (e.g., across settings, participants, or behaviors), thus making it an appropriate choice for decreasing behaviors (e.g., aggression) or increasing behaviors (e.g., academic skills; Alberto & Troutman, 2009).

After baseline data have been collected and stability is established for the first dependent variable being measured (i.e., across settings, participants, or behaviors), then treatment is initiated on that dependent variable only. Throughout the first intervention phase, baseline data are collected for the other dependent variables not yet receiving the independent variable (i.e., treatment). Only after a trend in the desired direction (i.e., a minimum of three consecutive data points) is established with the first dependent variable, is treatment then initiated on the second dependent variable (Barlow & Hersen, 1984; Kazdin, 1992). Baseline data continue to be collected for any remaining dependent variables that have not yet received the intervention, while the second dependent variable is also observed for a trend in the desired direction. Each time that the design is replicated and a change in behavior is demonstrated, the presence of a functional relationship is again demonstrated, thus supporting the strength of the intervention (Alberto & Troutman, 2009). The only behavior that should change is the one receiving the treatment, otherwise internal validity is threatened.
For example, a multiple-baseline across subjects design was used by Alber et al. (1999) to investigate students’ recruitment of positive teacher attention. The research questions were, “What effect does recruitment training have on the rate of recruiting by students,” “What effect does recruitment training have on the rate of teacher praise received by students,” “What effect does recruitment training have on the rate of instructional feedback received by students,” and “What effect does recruitment training have on the accuracy with which students completed their workbook assignments?” Participants included two general education teachers and 4 sixth grade students who all had learning problems (i.e., specific learning disability or general difficulty with math). Student participants were selected because of their lack of productivity during independent work time. Each of the two teachers had more than 10 years of teaching experience. One teacher taught math and the other taught social studies.

Dependent variables were student recruiting (e.g., raising hand, waiting until recognized by the teacher, asking a question or making a statement related to the academic assignment), teacher praise (e.g., making a statement of approval to a student regarding the student’s academic assignment), instructional feedback (e.g., making a statement to a student, answering questions, or providing corrective feedback, all related to academic assignments), and academic work productivity (Alber et al., 1999). In order to be counted as teacher praise, statements had to specifically refer to a particular student (e.g., not to the entire class or a group of students).

The independent variable was recruitment training provided to the students for the purpose of appropriately recruiting positive teacher attention. During intervention, each
student was provided with a five minute morning prompt. The prompting period consisted of the teacher trainer reviewing the recruitment procedure with student participants, prompting students to recruit a minimum of two but no more than three times in a session, and distributing prompting cards if students failed to demonstrate the recruiting behavior immediately following the two days of training during baseline. At the end of each school day following data collection, a follow up check was conducted by the same recruitment training teacher with student participants, and prompting cards were exchanged for rewards.

Graphic analysis (i.e., visual inspection) shows baseline stability for all the students. The recruitment training occurred successively for each student after baseline was established and three of the students responded favorably after only two trainings. However, the second subject showed no response to recruitment training and as a result received three days of training intervention following baseline. Results show that recruitment training significantly increased both the rate of teacher praise statements and instructional feedback for three out of four students when reinforcement was administered intermittingly.

One advantage of the multiple baseline design is that it facilitates behavior change without withdrawing the intervention (e.g., as required in the reversal design) and without adjusting the requirements for change in substeps (e.g., as required in the changing criterion design). The ability to evaluate effectiveness while demonstrating a functional relationship without withdrawing the intervention or changing the independent variable criterion is especially important in certain situations where there are ethical
considerations related to client or student safety (Gliner & Morgan, 2000) and making such changes would potentially threaten their well-being.

The disadvantage of the multiple baseline design however, is a lack of practicality, as the intervention must be applied repeatedly. Such a requirement could involve more resources than other designs. Additionally, baseline must be collected over extended periods of time, thus making this design especially ill suited for behaviors that require immediate action (e.g., self injury, aggressive behaviors; Barlow & Hersen, 1984).

**Threats to Validity**

Traditionally, establishing internal validity (i.e., determining that the independent variable did in fact cause the change in the dependent variable) is the first priority when conducting a research investigation (Kazdin, 1992). By ruling out as many extraneous variables as possible, the effect of the intervention is strengthened (i.e., internal validity). Also of concern, however, is whether external threats to validity can be ruled out, thus demonstrating that results may be attributed to the changes in the independent variable and a case for generalization across other subjects, settings, interventionists and/or behaviors be supported (Kazdin, 1992). Such findings are especially important in applied research, in which investigators work to identify an effective treatment that is applicable to as many situations or subjects as possible for practicality purposes. The greater the generalization (i.e., external validity), the stronger the intervention is.
Internal Validity

Internal validity refers to the investigator’s ability to rule out alternative explanations for a change in performance and/or behavior (Barlow & Hersen, 1984). Prior to drawing any inferences about the independent variable, all potential threats to internal validity must be ruled out. Extraneous factors are referred to as threats to internal validity and may include history, maturation, testing, instrumentation, statistical regression, selection biases, attrition, and diffusion of treatment (Kazdin, 1982).

History refers to any explanation other than the intervention itself that occurred at the same time as when the intervention was applied (Alberto & Troutman, 2009). Maturation refers to any explanation that occurs as a result of the natural growth of subjects over time. Testing includes any change that results from repeated exposure to assessments, and instrumentation refers to any change in how performance or behavior is measured (e.g., either in the instrument or the observer that is responsible for the scoring). Statistical regression results from repeated exposure to assessments. Selection bias accounts for any differences that existed prior to introducing the intervention. Attrition is the loss of participants over time, and finally, diffusion of treatment occurs when the intervention is introduced to any member of the control group that is exempt from receiving the treatment. Research designs must rule out each of these threats to the greatest extent possible in order to minimize outside influences on the outcomes (Alberto & Troutman, 2009). Single-subject research designs purposefully and systematically make changes in whether and how an intervention is implemented (e.g., provided with more or less intensity), and then evaluate how the target behavior responds to those
changes. As such, researchers can make claims as to the extent to which the intervention causes changes in student outcomes (Kazdin, 1992) and rule out possible threats to internal validity by controlling the environmental variables, comparing subjects to themselves, and collecting repeated and reliable data.

**External Validity**

External validity is defined as the ability to generalize the results of a particular investigation to other situations (e.g., people, settings, target behaviors; Barlow & Hersen, 1984). Just as behavior change is planned for, initiated through intervention, observed, recorded, and replicated, so too must generalization be planned for and implemented (Baer et al., 1968). Characteristics that limit the potential for generalization are threats to external validity. Such threats include but are not limited to generalization across subjects, settings, responses, times, interventionists, experimental reactivity and/or assessment, pretest sensitization, and multiple-treatment interference (Kazdin, 1982). Before the results from any investigation may be considered generalizable, replication must occur (Hittleman & Simon, 2002). Because single-subject research designs lack the random assignment required to make it a truly experimental design (Trochim, 2001), replication becomes even more important for generalization.

**Evaluating the Data**

Visual inspection provides the primary means of evaluating data displayed on graphs (i.e., graphic analysis) for the purpose of drawing conclusions about any changes in the dependent variable when using SSR (Kazdin, 1982; Leary, 2001). One benefit of visual inspection includes identifying changes attributed to the intervention. For
example, clear distinctions between the occurrence of the dependent variable during baseline conditions as compared to during intervention conditions, provides evidence of the effectiveness of the intervention. Such visual inspection provides a way of identifying large changes in the data. Changes that are large enough to be noticed through visual inspection are often attributed clinical significance—meaning that the changes are of practical value and have an impact in an individual’s life (Alberto & Troutman, 2009; Kazdin, 1992).

Visual inspection occurs by looking at graphed data in relation to four specific characteristics across the different conditions (e.g., baseline, intervention) of the design: Mean, level, trend, and immediacy of change in behavior (Kazdin, 1982). The mean is determined by looking at the average change in performance from one phase to the next. If changes are consistent between phases, then support exists for the effectiveness of the intervention. Level is identified by looking for changes that occur between the end of one phase and the beginning of the next phase. The mean and level of performance refer to the magnitude of the change in the dependent variable; and the trend and immediacy of change refer to the rate of change in the dependent variable (Alberto & Troutman, 2009).

The trend is identifiable when there is a systematic increase or decrease in the direction of the behavior in the different conditions of the design. If the intervention is effective, the trend will significantly increase or decrease with the onset of each new phase or there will be a complete reversal with the onset of a new phase. Finally, the immediacy of change accounts for the change in behavior from the end of one phase to the beginning of the next (i.e., identified by a sudden change in the data) or the beginning
of one phase and the end of the same phase. Also important is whether the data are overlapping across contiguous conditions. When the data do not overlap significantly, there is further evidence of a functional relationship.

Single-subject research designs provide a means of identifying and examining the effectiveness of different treatment interventions for a variety of research questions (Tankersley, Landrum, & Cook, 2004). As researchers in special education continue to conduct investigations for the purpose of identifying effective practices and interventions, single-subject designs offer a way of transforming theory into practice, in the interest of students and all involved in the educational process (Cook & Schirmer, 2003). For the purpose of this study, single-subject research methods were used to investigate both the effectiveness, as well as the feasibility of the teacher administered behavior-specific praise intervention in classrooms with students in general and special education.

**Purpose of Study**

The purpose of this study is to investigate the effects of teacher administered behavior-specific praise on promoting positive behavior in students, as demonstrated by exhibiting on-task behavior and decreasing negative behaviors, in addition to examining the feasibility of delivering it at 1-minute, 3-minute, and 5-minute intervals in three different general or special education classrooms. Using Sutherland et al. (2000) as the basis, the specific objectives of this study include examining the following questions:

1. What are the effects of teacher administered behavior-specific praise on promoting positive behavior in students, as demonstrated by exhibiting on-task behavior in the classroom setting?
2. What are the effects of teacher administered behavior-specific praise on decreasing negative behavior in students (i.e., verbal, out-of-seat, touching, and non-engagement) in the classroom setting?

3. What differences in positive and negative student behavior are observed when teachers are prompted to deliver behavior-specific praise at 1-minute, 3-minute, and 5-minute intervals?

Results from the Sutherland et al. (2000) study support the use of teacher administered behavior-specific praise for increasing student on-task behavior. The current study follows Sutherland et al. by examining the effect of varying rates of teacher administered behavior-specific praise on the dependent variable of student on-task behavior. Also similar to the recommendation in the Sutherland et al. study, students were observed during academic instructional time, as some students find academics to be aversive. In addition, this study extends the research by following the recommendation of Sutherland et al. to include more observations per session.

Unlike Sutherland et al. which used an ABAB reversal design that allowed for 15 minutes of observation time per data collection session, the current study uses an alternating treatments design to analyze the effects of the intervention. This allows for 30 minutes of cumulative observation time per data session, as represented on the graph by 3 data points (i.e., 1-minute, 3-minute, and 5-minute delivery intervals). By using an alternating treatments design, this provides 2X the observation time in the Sutherland et al. study, and 3X the number of observations per session. In addition, the current study also extends the Sutherland et al. study by looking at the effects of varying dosage
delivery intervals (i.e., 1-minute, 3-minute, and 5-minute) on four off-task student behaviors (i.e., verbal, out-of-seat, touching, and non-engagement).

This study also extends the research, as it directly relates to the need of general and special education teachers to find effective and nonintrusive evidence-based practices (i.e., behavioral interventions) for increasing positive classroom behavior (e.g., remaining on-task; raising hand and waiting to be called on; staying in seat; keeping hands, feet, and objects to self) for students with and without disabilities as mandated by the NCLB Act (Burns & Ysseldyke, 2009). Because of increased expectations for students with disabilities to be included in general education classrooms, and because of increased standards regarding teacher accountability for teaching all students the curriculum content, it is essential that teachers are equipped with classroom management strategies that are applicable to all students—including students in general education settings with academic and/or behavioral challenges, and students with disabilities who are included in the general education classroom (Cook, Tankersley, & Harjusola-Webb, 2008; Sutherland, Carter, Farmer, Hoover, & Kostewicz, 2007). As a result, all teachers (i.e., general education and special education teachers) need to find effective ways of managing students in inclusion settings (Van Laarhoven, Munk, Lynch, Bosma, & Rouse, 2007). Research supports behavior-specific praise as an effective and easy to use intervention for increasing positive behavior in students (Harris et al., 2009; Hattie & Timperley, 2007; Reinke, Lewis-Palmer, & Merrell, 2008).
CHAPTER II

METHOD

Research Questions

Teacher-administered behavior-specific praise is an effective intervention that can be used to increase positive student behavior in the classroom (Fullerton et al., 2007). Given that teacher administered behavior-specific praise is a no-cost, readily available, and easy to use evidence based practice (EBP; Sutherland, 2000), it is surprising to learn that such a proven technique is rarely used (Wehby et al., 1998; Wehby et al., 1995). Indeed, contrary to research findings that suggest a ratio of praise to reprimands that is approximately 4:1 (Walker, Colvin, & Ramsey, 1995) for increasing positive behavior, unfortunately, research reveals a much lower frequency regarding the use of praise by classroom teachers (Beaman & Wheldall, 2000; Conroy et al., 2008; Hester, Hendrickson, & Gable, 2009; Wehby, Lane, & Falk, 2003). Extensive research regarding the use of behavior-specific praise for increasing social and academic-related behavior has shown it to be an effective strategy (e.g., Gunter & Denny, 1998; Shores et al., 1993; Wehby et al., 1998) that should be beneficial in both the general and special education classroom.

The purpose of this study is to investigate the effects of teacher administered behavior-specific praise on promoting positive behavior in students, as demonstrated by exhibiting on-task behavior and decreasing negative behaviors. In addition to observing effectiveness, the study also examines the outcomes in relation to delivering behavior-specific praise at 1-minute, 3-minute, and 5-minute intervals in three different
general or special education classrooms. The following research questions were addressed:

1. What are the effects of teacher administered behavior-specific praise on promoting positive behavior in students, as demonstrated by exhibiting on-task behavior in the classroom setting?

2. What are the effects of teacher administered behavior-specific praise on decreasing negative behavior in students (i.e., verbal, out-of-seat, touching, and non-engagement) in the classroom setting?

3. What differences in positive and negative student behavior are observed when teachers are prompted to deliver behavior-specific praise at 1-minute, 3-minute, and 5-minute intervals?

**Participants**

The primary participants in this study included three students for whom the effectiveness of behavior specific praise was assessed. The secondary participants in this study included three classroom teachers who were responsible for administering the behavior-specific praise intervention. Both groups of participants are described in the following sections.

**Student Participants**

Three students (one female and two males) participated in this study. Two of the participants (Samantha and Michael) were first-graders who were not receiving special education services and the third participant (Christopher) was a seventh-grader who received special education for his learning disability. All three student participants
attended a metropolitan school that served students from preschool through the eighth grade. Class sizes for participants in the two general education classrooms were 20 students in each classroom and the special education class had a total of 15 students. All three student participants were selected by their individual classroom teacher because they displayed inappropriate and/or disruptive behaviors regularly in the classroom. Teachers were given the following directions when asked to nominate students to participate: “You’ll be asked to select one of your students with the highest frequency of disruptive and/or inappropriate behavior whose behavior negatively impacts his or her educational progress. Such behavior may also be disruptive to the overall classroom educational process.” Table 2 shows the demographic information for the student participants.

### Table 2

**Student Participant Demographic Information**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age</th>
<th>Race</th>
<th>Instructional Setting</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samantha</td>
<td>Female</td>
<td>6</td>
<td>African American</td>
<td>General Education</td>
<td>1</td>
</tr>
<tr>
<td>Michael</td>
<td>Male</td>
<td>6</td>
<td>African American</td>
<td>General Education</td>
<td>1</td>
</tr>
<tr>
<td>Christopher</td>
<td>Male</td>
<td>12</td>
<td>African American</td>
<td>Special Education (i.e., Learning Disability)</td>
<td>7</td>
</tr>
</tbody>
</table>

**Teacher Participants**

Three teachers participated in this study. The three teacher participants had been employed with the district for an average of 10 years, with a range of 3 to 14 years. All
three teacher participants had substituted for an average of two years (i.e., had ranged from less than one year to four years) prior to securing their first teaching position, and all three had taught in the public school system since first entering the teaching profession.

The first teacher participant, Julie, had taught for 14 years. She held a Bachelor’s degree in Elementary Education (i.e., grades 1–8), and a masters degree in Reading and Math Education. Her teaching experience had been with students in general education (i.e., grades 1–5) and she was state certified to teach students in general education (i.e., grades 1–8). At the time of the study she provided instruction for a first/second grade class split.

The second teacher participant, Christine, had taught for 13 years. She held a Bachelor’s degree in Elementary Education (i.e., 1–8), and a masters degree in Curriculum and Instruction. Her teaching experience had included students in general education (i.e., grades 1, 3, and 5), and she was state certified to teach students in general education (i.e., grades 1–8). At the time of the study, she was employed as a first grade teacher.

The third teacher participant, Nicole, had taught for three years and had a Bachelor’s degree in Special Education, although she was currently pursuing a masters degree in Educational Research. Her teaching experience had included students in special education (grades K-8) with SLD (specific learning disabilities), CD (cognitive disabilities), and OHI (other health impairments). She was state certified to teach students in special education (grades K–12) with Mild/Moderate and Moderate/Intensive,
Disabilities. At the time of the study, she was employed with the district as a cross-categorical special education teacher for students with SLD, CD, and OHI (in grades 7 and 8). Table 3 shows the demographic information for the teacher participants.

Table 3

Teacher Participant Demographic Information

<table>
<thead>
<tr>
<th>Participant</th>
<th>Teacher Julie</th>
<th>Teacher Christine</th>
<th>Teacher Nicole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching experience:</td>
<td>Elementary Education (grades 1-5) 14 years</td>
<td>Elementary Education (grades 1, 3, 5) 13 years</td>
<td>Special Education - SLD, CD, OHI (grades K-8) 3 years</td>
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<tr>
<td>Degrees:</td>
<td>Bachelors Degree Elem. Ed. (1-8)</td>
<td>Bachelors Degree Elem. Ed. (1-8)</td>
<td>Bachelors Degree Special Education</td>
</tr>
<tr>
<td>Masters Reading/Math Education</td>
<td>Masters Curriculum and Instruction</td>
<td>Enrolled in masters program Educational Research</td>
<td></td>
</tr>
<tr>
<td>Teaching assignment during current study:</td>
<td>1st/2nd grade class split</td>
<td>1st grade</td>
<td>Cross-categorical 7th/8th grade SLD, CD, OHI</td>
</tr>
</tbody>
</table>

Setting

This study took place in a Midwestern, metropolitan public school. The student body consisted of approximately 350 students ranging from preschool through eighth grade, in both general and special education. The school was comprised of 99% African American and 1% Hispanic and Caucasian students. Both general education teacher participants were responsible for the educational programming in all academic subjects, for all of their students. The special education teacher participant was responsible for all
academic subjects for which students were not mainstreamed into the general education setting, according to the students’ individualized education plans (IEPs).

The school had two special education classrooms for students with EBD (emotional and behavioral disorders) and three cross-categorical special education classrooms for students with SLD, CD, and OHI. For the purpose of this study, one of the cross-categorical special education classrooms was selected and two general education classrooms were also chosen to participate. Similar to Sutherland et al. (2002), this study was conducted during a period of time that was reserved for whole class or small group instruction in the subject areas of math or literacy/language arts, but unlike Sutherland et al., did not also include science or social studies.

**Dependent Variables and Behavioral Definitions**

The dependent variables for students were on-task behavior and four subcategories of off-task behavior (i.e., verbal, out-of-seat, touching, and non-engagement). The dependent variables for teachers were behavior-specific praise statements and reprimands. The two teacher behaviors were recorded as an additional means of ensuring treatment integrity.

According to Beck, Burns, and Lau (2009), on-task behavior is the most common behavior problem for which students are referred to school psychologists (Bramlett, Murphy, Johnson, Wallingsford, & Hall, 2002) is the most observable of all behaviors (Gettinger & Seibert, 1999), and is consistently linked to academic outcomes (Gettinger, Stoiber, Goetz, & Caspe, 1999). In addition to observing student on-task behavior, four subcategories of off-task behavior were identified for the purpose of specifying the nature
of any behavior which was not on-task (Alberto & Troutman, 2009). The four subcategories of off-task behavior were verbal, out-of-seat, touching, and non-engagement. These four subcategories of off-task behavior were selected on the basis of teacher report. Teachers reported that the frequency with which students exhibited the four off-task behaviors not only dramatically reduced teacher-led instructional time, but that students’ academic achievement was also greatly affected. The dependent variable of on-task behavior and four subcategories of off-task behavior were defined as follows.

*On-task* behavior was defined as directing one’s eyes or gaze toward the teacher, work or task-related materials, and/or asking relevant questions. Examples of on-task behavior included, but were not limited to, attending to the assigned reading material (e.g., appearing to silently read material), writing, raising hand to ask for assistance, and listening to the teacher explain directions, as described in the BOSS, developed by Shapiro (2004). The BOSS is used to assess academic (i.e., on-task and off-task) behavior (Volpe, DiPerna, Hintze, & Shapiro, 2005).

*Verbal* off-task behavior was defined as any audible vocalization made without teacher permission. Examples of verbal off-task behavior included, but were not limited to, calling out answers or calling out for help instead of raising a hand; calling out to other students to be quiet; making negative statements to peers or adults (e.g., arguing, talking back); engaging in taunting, name calling, or inappropriate talk such as verbal comments to or about peers; tattling, making antagonistic comments, and/or threats to others; asking irrelevant questions that do not pertain to the lesson, mumbling, talking,
whistling, whispering, whining, humming or singing; exaggerated yawning or sighing; during instructional time.

*Out-of-seat* off-task behavior was defined as any non-seated position. Examples of out-of-seat off-task behavior included, but were not limited to, standing, partially standing (e.g., kneeling, sitting up on one or two legs, sitting on knees in seat, stepping up onto chair), leaving the assigned and/or designated activity area without permission (including leaving the area for purposes such as throwing papers away, getting a drink of water, sharpening a pencil, and/or handing or giving something to someone else), walking or running around the desk area or room, or moving or changing seating areas without permission.

*Touching* off-task behavior was defined as any physical movement which resulted in a disruption of the educational process, invaded the space or materials of others, and/or had the possibility of damaging school property. Examples of touching behavior included, but were not limited to, kicking or pushing the furniture, foot stomping or tapping, taking shoe or boot off and dragging it behind or alongside while passing out materials, tapping pencils or ruler, banging forcefully on objects or surfaces, pushing or hitting, throwing objects (e.g., pencils, eraser tops, paper, books, chairs), passing or throwing notes, touching others or their desks, writing on the desk, dropping or throwing materials on floor, making inappropriate gestures, and/or clapping at inappropriate times.

*Non-engagement* off-task behavior was defined as non-working but non-disruptive behavior. Examples of non-engagement included, but were not limited to, engaging in non-task related activities such as directing one’s gaze toward non-task related materials
and/or staring, drawing or coloring, writing notes to others, not taking instructional items out of desk when given the directive, facing the opposite direction of the lesson or turning sideways in seat, dancing or jerking body in seat, rocking chair back and forth, placing materials on head, putting head down on desk, playing with materials or leisure items (e.g., games, toys), sitting passively while looking away from the task, covering face and/or ears with hands, hitting sides of face or pretending to box in the air, randomly flipping pages in the assigned task, eating in class, and not attending to or not working on the lesson or assignment. Dependent variables for teachers are defined below.

*Behavior-specific praise statements* included any verbal statement in which the teacher gave praise for a desired student behavior which was specified in the praise statement, according to Sutherland et al. (2000).

*Reprimands* included any verbal statement in which the teacher indicated disapproval for an undesirable student behavior, according to Sutherland et al. (2002). See Appendix A for a quick reference guide to the behavioral definitions.

**Measurement Procedure**

A direct observational recording system was used to estimate the occurrence of on- and off-task behaviors. Momentary time sampling was used to record the occurrence and nonoccurrence of the student dependent variables (i.e., on-task, verbal off-task, out-of-seat off-task, touching off-task, and non-engagement off-task) at the end of every 10-second interval, and event recording was used to record the teacher dependent variables (i.e., behavior-specific praise statements and reprimands) throughout each 10-minute observation session. Participants’ behaviors were notated by recording an X
in the appropriate boxes listed on the data recording sheet. Data observation sessions were consecutive and took place over a period of approximately eight weeks (i.e., 2 months) during the Spring academic semester. Two observation sessions occurred daily in each of the three student participants’ classrooms. Each data session was 10 minutes in length, and occurred during a 50-minute instructional period. Student participants received two periods of daily instruction for Math and for Reading/Language Arts. Due to school-wide scheduling constraints, the two periods were separated by a special class (e.g., Music, Art, Physical Education) or lunch. A minimum of 50 minutes passed between the two instructional periods.

According to Alberto and Troutman (2009), one feature of the momentary time sampling measurement procedure that distinguishes it from interval recording is that the participant is only observed once during the interval and that is at the end of each time interval. This measurement system differs from interval recording whereupon the participant is observed throughout the interval. Therefore, a key benefit of using momentary time sampling is that it permits the recording of continuous behaviors and/or behaviors of high frequency which may be difficult to capture using such measurement procedures as event recording (Alberto & Troutman, 2009).

The two teacher dependent behaviors (i.e., behavior-specific praise statements and reprimands) were recorded as an additional means of checking for treatment integrity. For example, when the 1-minute treatment was administered, the teacher participant’s behavior was recorded and checked for the administering of one behavior-specific praise statement at the end of each minute (i.e., a minimum of 10 behavior specific-praise
statements per data collection session). When the 3-minute treatment was administered, the teacher participant’s behavior was recorded and checked for the administering of one behavior-specific praise statement at the end of every 3 minutes (i.e., a minimum of 3 behavior-specific praise statements per data collection session). Finally, when the 5-minute treatment was administered, the teacher participant’s behavior was recorded and checked for the administering of one behavior-specific praise statement at the end of every 5 minutes (i.e., a minimum of 2 behavior-specific praise statements per data collection session).

Each individual data recording session was 10 minutes in duration, and was divided into 60 intervals. Therefore, participants were observed 60 times per observation session—once at the end of each 10-second interval. Each observation session occurred for 10 minutes of an instructional class period that was 50 minutes in length.

To document the results of each 10-second momentary time sampling observation, a recording sheet was created that listed each dependent variable for student participants on the left, with each 10-second interval across the top of each column. For the teacher participants, the dependent variables were listed on the right side of the data recording sheet for event recording during each data collection session. The result was a series of boxes that allowed the observers to simply mark the target behavior that was occurring at the end of each 10-second interval. The recording sheet included 10 of the same tables for each minute of the observation. Table 4 shows an example of a table from the track coded data recording sheet used for momentary time sampling. See Appendix B for the complete three page data recording sheet.
Table 4

Track Coded Data Recording Sheet

<table>
<thead>
<tr>
<th>Track coded data sheet for time sampling</th>
<th>Behavior: On-task</th>
<th>Subject: ____________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student: ____________</td>
<td>Teacher: ____________</td>
<td>Session Number: ______</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>10 s</th>
<th>20 s</th>
<th>30 s</th>
<th>40 s</th>
<th>50 s</th>
<th>60 s</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>on-task</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BSP</td>
</tr>
<tr>
<td>verbal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>out-of-seat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TR</td>
</tr>
<tr>
<td>non-engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>touching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The observers individually scored each dependent variable. Results were calculated at the end of each data collection session.

**Interobserver Agreement**

For the purpose of conducting reliability checks, two observers collected data at the same time for a minimum of 25% of the observation sessions in each phase of the study. The two observers included the researcher (primary observer) and another member of the School Support Team (SST). At the time of the study, both were employed in the same large metropolitan school district and both served on the SST.

The first observer who also served as the researcher for this study served as a member on the school’s SST at the time of the study. She held a masters degree in special education and was pursuing a doctorate degree, also in special education. In addition, she had 20 years of teaching experience, with 15 years in general education.
(grades 2–6) and 5 years in special education (grades 3–6). The special education experience included teaching students with multiple disabilities, EBD, and SLD.

The second observer served as the facilitator for the school’s SST at the time of the study. She held a masters degree in Curriculum and Instruction, with licensure in Mild/Moderate Special Education and taught students with EBD. In addition, she had 13 years of teaching experience, including general education (grades 1, 3–5) and special education (grades 3–6). In special education, she had taught students with CD, SLD, and EBD.

Both observers were very comfortable and familiar with data collection procedures as a result of their enrollment in graduate studies, their own use of data collection in the classroom when addressing a student’s skill deficit or need, and their involvement as members of the SST which included observing students and measuring students’ behavior. As a result of active SST procedures, student and teacher participants were very familiar with both observers and consequently, any distractions due to the observers’ presence were minimal during data collection.

Before the collection of baseline data began, the two observers read and reviewed the definitions of the target behaviors, in addition to reviewing the methods for recording target behaviors. Both observers had a copy of a quick-reference guide to the behavioral definitions to refer to as needed. Both observers also had a copy of the track coded data sheet. Data collection was practiced prior to baseline and occurred during regular instructional class periods for three 10-minute sessions in each of the three student participants’ classrooms. Both observers worked independently during each 10-minute
observation session, sitting approximately three feet apart from each other. Each observer had a clipboard which provided a surface to work on when recording target behaviors. In addition, both observers had an earpiece which was on the end of a Y-jack that was connected to a cassette player which emitted a beeping sound once every 10-second interval for the entire data collection session. Results were compared after each data observation session. Behavioral definitions were reviewed prior to each data observation session, and both observers had a copy of the quick-reference guide to the behavioral definitions, to refer to as needed throughout the study.

Interobserver agreement estimates were calculated for the occurrence or nonoccurrence of student on-and off-task behavior (i.e., verbal, out-of-seat, touching, and non-engagement), and for the occurrence or nonoccurrence of teacher administered behavior-specific praise statements and reprimands. Interobserver agreement estimates for each student dependent variable were calculated for each 10-minute session by dividing the total number of agreements by the total number of agreements plus disagreements, and multiplying by 100 (Kazdin, 1982). Interobserver agreement estimates on the frequency of each teacher dependent variable were calculated for each 10-minute session by dividing the smaller total by the larger total, and multiplying by 100 (Kazdin, 1982).

**Intervention Procedures**

This study was conducted in three different classrooms, with a different teacher participant (and student participant)—Teacher Julie (Samantha), Teacher Christine (Michael), and Teacher Nicole (Christopher)—in each classroom.
Independent Variable

The intervention for this study consisted of prompting teacher participants to deliver behavior-specific praise in rotating fixed time intervals (i.e., 1-minute, 3-minute, and 5-minute). Prompting of teacher participants to administer behavior-specific praise took place in each of the three teacher/student participants’ classrooms. Each teacher participant used a battery operated cueing device (i.e., MotivAider®) to prompt the teacher when it was time to provide behavior-specific praise according to the rotating fixed time delivery intervals (http://habitchange.com). Time increments varied (i.e., 1-minute, 3-minute, and 5-minute), depending on the intervention rotation schedule. The MotivAider® was labeled (i.e., A, B, or C) and set for the appropriate corresponding delivery interval (i.e., A = 1-minute, B = 3-minute, and C = 5-minute) prior to each intervention session. Teacher participants were given a pre-set MotivAider® prior to each instructional period of observation. Teacher participants were signaled once the observer(s) were ready to begin each data recording session. The teacher then turned on the MotivAider® and provided a cue for the observer(s) to begin.

Teacher participants were trained to incorporate behavior-specific praise according to the following procedures. Training for all three teacher participants was conducted at the same time, following baseline data collection and included the following procedures: (a) video presentation on the use of the MotivAider®; (b) a detailed explanation and discussion of the importance and appropriate use of behavior-specific praise, and examples and non-examples of behavior-specific praise; and (c) a praise menu brochure that listed both examples and non-examples of behavior-specific praise.
and served as a quick-reference guide for teachers as they administered the intervention. The training was conducted by the primary researcher and was completed in a one-hour session in one day.

The first teacher training component was a video presentation explaining the purpose of the MotivAider® battery operated piece of equipment and how it worked. The web based video not only provided instructions on how to set the MotivAider® for a specific period of time (i.e., according to the block rotation schedule), but it also provided various options for its use. For the purpose of this study, the MotivAider® was programmed by the experimenter to vibrate at the prespecified, fixed time interval selected for the data collection session. Upon vibration, which signaled the intervention prompt, teacher participants were instructed to administer behavior-specific praise preferably to the designated student participant, or find another student in the class to praise.

The second teacher training component consisted of a detailed explanation and discussion of the importance and appropriate use of behavior-specific praise, along with examples and non-examples of behavior-specific praise. Specifically, the trainer explained that behavior-specific praise has been used to increase student behaviors including time-on-task, academic accuracy, and study behavior. The trainer also provided teacher participants with a verbal summary regarding the use of behavior-specific praise in past studies. Teachers were given a description of the ages of students (i.e., preschool, elementary, and adolescent) and their educational placement (i.e., general education and special education for students with EBD, autism, behavioral problems, developmental
disabilities, and/or learning disabilities) with which behavior-specific praise has been used. Teachers were also informed of the benefits of behavior-specific praise for both students and teachers. In addition, the trainer explained that behavior-specific praise could be used by teachers to improve both academic and social behaviors among students. The trainer also explained that behavior-specific praise is a practical intervention for teacher use, as it’s not only free, but it takes very little time to administer.

The trainer also highlighted the fact that behavior-specific praise is especially useful in an applied setting such as a school because teachers are encouraged to use behavior-specific praise to reinforce approximations of appropriate behavior, as students are exposed to new behaviors and work to incorporate them into their skill set. As a result, the trainer also emphasized the power of behavior-specific praise for changing the climate of the classroom through the modeling of appropriate behavior by the classroom teacher, thus increasing positive teacher-student interactions and potentially affecting classroom management, and the establishment and maintenance of a positive and productive classroom environment.

In addition, considerations of how to administer various examples of behavior-specific praise, along with examples and non-examples of behavior-specific praise were provided. The purpose of providing both examples and nonexamples was to give teacher participants a clear understanding of what behavior-specific praise would and would not look like when teacher participants were given the intervention prompt to administer behavior-specific praise during the intervention phase of the study.
Examples of behavior-specific praise used for training included those related to academic skills (e.g., raising hand, writing name on paper, asking questions) as well as social skills (e.g., thanking someone, keeping hands to self, smiling). The delivery of behavior-specific praise statements was the focus for the presentation—use of behavior-specific terminology, use of prompts for student behavior in order to provide adequate opportunity to praise, and identifying appropriate behaviors within routine events (e.g., completing work, transitions, class participation). Non-examples were also identified during training and focused on vague, non-referent statements.

Finally, the trainer wrapped up the second teacher training component by again emphasizing the importance of administering behavior-specific praise, and once more reminded the teacher participants that in any applied setting such as a classroom, unexpected situations and/or opportunities sometimes present themselves as teachable moments and that it is important to take advantage of these opportunities by responding with behavior-specific praise statements when appropriate.

The third teacher training component (i.e., praise menu brochure) was given to the teacher participants so that they could refer to it if they needed a visual prompt to assist them once they received the intervention prompt to deliver behavior-specific praise to the student participants. The praise menu brochure consisted of contrasting behavior-specific examples and non-examples. Three suggestions for examples of social behavior-specific praise included: “Excellent job using your time wisely to complete your assignment,” “Nice job working quietly,” and “I like how you’re quietly raising your hand and waiting to be called on when you have a question.”
Three suggestions for examples of academic behavior-specific praise included:

“Good job numbering your problems and writing your numbers in straight columns,”
“Your’re doing a very good job of carefully checking your work,” and “Your writing is very neat.” Contrast non-examples of behavior-specific praise in the brochure included: “Nice job,” “Good job,” “That’s great,” “I like that,” “Super job,” “Fantastic,” and “Keep it up.” The primary purpose of the praise menu brochure was to offer behavior-specific praise examples (both academic and social) that would serve as the treatment for the study, in addition to providing non-examples of behavior-specific praise.

At the end of the teacher training inservice each teacher was given an opportunity to practice using a MotivAider® that clipped onto their belt or could be placed in their pocket. This completed the teacher training inservice. See Table 5 for the praise menu brochure.

After teachers were taught how to implement behavior-specific praise, they implemented it at different time intervals upon receiving the intervention prompt to deliver behavior-specific praise. On a rotating schedule (i.e., 1-minute, 3-minute, and 5-minute intervals), teachers provided behavior-specific praise statements to target students each time the MotivAider® vibrated during consecutive 10-minute observation sessions. All on-task observation sessions occurred during 50-minute instructional periods.
Table 5

*Behavior-Specific Praise Menu Brochure*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instructional Benefits:</strong></td>
<td><strong>Do's (examples of BSP):</strong> Social Behavior:</td>
<td><strong>Don't's (non-examples of BSP):</strong></td>
</tr>
<tr>
<td>- <em>Behavior-specific praise</em> is a research based intervention that is easy to use, no-cost, and readily available.</td>
<td>- &quot;Excellent job using your time wisely to complete your assessment.&quot;</td>
<td>- &quot;Nice job.&quot;</td>
</tr>
<tr>
<td>- Replace negative reciprocal relationships between student and teacher, using teacher initiated examples of positive interactions.</td>
<td>- &quot;Nice job working quietly.&quot;</td>
<td>- &quot;Good job.&quot;</td>
</tr>
<tr>
<td>- Grow or increase positive behaviors that are conducive to learning.</td>
<td>- &quot;I like how you're quietly raising your hand and waiting to be called on when you have a question.&quot;</td>
<td>- &quot;That's great.&quot;</td>
</tr>
<tr>
<td>- Decrease disruptive behaviors or behaviors that interfere with learning.</td>
<td><strong>Academic Behavior:</strong></td>
<td>- &quot;I like that.&quot;</td>
</tr>
<tr>
<td></td>
<td>- &quot;Good job numbering your problems and writing your numbers in straight columns.&quot;</td>
<td>- &quot;Super job!&quot;</td>
</tr>
<tr>
<td></td>
<td>- &quot;You're doing a very good job of carefully checking your work.&quot;</td>
<td>- &quot;Fantastic!&quot;</td>
</tr>
<tr>
<td></td>
<td>- &quot;Your writing is very neat.&quot;</td>
<td>- &quot;Keep it up.&quot;</td>
</tr>
</tbody>
</table>
Design

A single-subject alternating-treatments design was used to assess the intervention effects of this study and was chosen because of its efficiency in evaluating two or more treatments (Gast, 2010). Typically, in other single subject research designs, only one treatment is examined for its effectiveness. The alternating-treatments design, however, allows for two or more treatments to be compared to the baseline condition (i.e., pre-intervention). Unlike the multiple-baseline design, in which the intervention is administered at different times to different participants, in the alternating-treatments design, all participants receive the intervention at the same time. This is especially helpful in a school setting, as was the case for this study, because the alternating-treatments design provides fast and accurate information so that a teacher may make informed instructional decisions as it relates to a specific child or class (Alberto & Troutman, 2009).

Each data collection session lasted for 10 minutes during the time that was allotted for whole class and/or small group instruction in the subject areas of Math and Reading/Language Arts. All data sessions displayed on the graph were recorded consecutively.

During the first condition of the study (i.e., baseline), the researcher sat at the back of the room with a data collection sheet for recording the occurrence of the dependent variables targeted for intervention. The definitions of the dependent variables were also provided with the data collection recording sheet to be used by both the researcher and the observer responsible for conducting reliability checks. In the baseline condition, data collection began in all three classrooms during the same week. Baseline
data included a total of 10 consecutive observation sessions for each student participant. Only one data point was displayed on the graph for each data observation session during the baseline condition.

In the second phase of the study (i.e., intervention), the MotivAider® vibrated at each pre-set fixed time interval, prompting teacher participants to administer behavior-specific praise according to the praise menu examples and teacher trainer inservice. Three delivery intervals (1-minute, 3-minute, and 5-minute) were compared for the purpose of determining which interval was more effective for increasing students’ on-task behavior. Because the alternating-treatments design allows for all three treatments to be compared to the baseline condition, three data points (i.e., one data point for each of the three treatments; 1-minute, 3-minute, and 5-minute delivery intervals) were displayed on the graph for each data observation session during the first intervention phase. The first intervention phase included a total of 18 consecutive observation sessions with three data points (i.e., 1-minute, 3-minute, and 5-minute delivery intervals) displayed for each session. This accounted for one complete 6-block rotation, with three treatment prompts for administering behavior-specific praise in each block.

Counterbalancing of the intervention prompt to deliver behavior-specific praise in varying intervals (i.e., 1-minute, 3-minute, and 5-minute) consisted of rotating treatments (i.e., ABC, BCA, CAB, ACB, BAC, and CBA) while making sure that student participants were exposed to prompting for all three delivery intervals (i.e., 1-minute, 3-minute, and 5-minute) for an equal number of sessions (Alberto & Troutman, 2009).
addition, counterbalancing was used to minimize the effects of potential confounding variables. Some examples of confounding variables that counterbalancing was used to rule out included, but were not limited to, the person administering the treatment, and/or the location in which the treatment was administered.

Using the alternating-treatments design is time effective, as the more effective treatment can very often be identified in only three to five data points once fractionation occurs (Kazdin, 2011). According to Alberto and Troutman (2009), fractionation is defined as the vertical separation of the data for one treatment from the data of the other treatments. Fractionation was used to evaluate the effect of three different treatment prompts (i.e., 1-minute, 3-minute, and 5-minute) for delivering behavior-specific praise, for the purpose of increasing positive behavior, as demonstrated by increased on-task behavior with less evidence of off-task behavior.

In the second intervention phase (i.e., third phase of the study), the two most effective treatment prompts were continued, with two data points displayed for each session. The more effective of the two treatments administered in the second intervention phase was identified and replicated in the fourth and final phase of the study. If the two treatments in the second intervention phase yielded similar results, then teacher feasibility would determine the final treatment to be continued in the fourth (i.e., third intervention phase) and final phase of the study. The purpose of replication was to rule out possible threats to internal validity, such as maturation and history (Cooper et al., 2007). Maturation accounts for any biological or psychological factors that may explain a change in the target behavior that is not due to treatment.
Examples of maturation might include, but are not limited to, chronological age and academic development. Like maturation, history may also weaken the internal validity of a study, and is defined as any event that has occurred since implementation of the intervention, other than the treatment itself which may explain a change in the target behavior (Schloss & Smith, 1998). Examples of history might include, but are not limited to, a change in the classroom environment such as initiating the use of a behavior chart or rearranging the seating plan.

In addition to strengthening internal validity, replication can also demonstrate the presence of a functional relationship. By consistently demonstrating that the more effective treatment from the second condition also yielded a consistent response in the target behaviors in the third condition, any alternative explanations were ruled out, in addition to establishing a functional relationship.

Data Analysis Procedure

Data sessions were consecutive and visual inspection was used for the purpose of examining differences in the data across conditions. According to Schloss and Smith (1998), the more dramatic the differences and the less frequent the overlapping data across conditions, the more evidence there is that a strong treatment exists. One way of determining the amount of overlapping data besides using visual inspection is to calculate the percentage of nonoverlapping data (PND). The first step in this process is to identify the highest or lowest data point (in a therapeutic direction) in baseline, and draw a dashed line that extends horizontally from that data point, across the remaining data in the intervention phases. Next, the percentage of nonoverlapping data (PND) is calculated by
subtracting the number of data points in the intervention phase which overlap on the therapeutic side of the line, from the total number of data points in the intervention phase, and dividing the difference by the total number of data points in the phase, multiplied by 100. This process is then completed for each of the intervention phases. According to Scruggs and Mastropieri (1998), the less overlapping data there are, the greater the effectiveness of an intervention. Consequently, a higher PND score indicates a more effective intervention, while a lower PND score indicates a less effective intervention. See Table 6 for the percentage of nonoverlapping data (PND) intervention effectiveness ratings (i.e., Very Effective, Effective, Questionable, and Ineffective).

Table 6

PND Intervention Effectiveness Ratings

<table>
<thead>
<tr>
<th>PND Score</th>
<th>Intervention Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 90%</td>
<td>Very effective</td>
</tr>
<tr>
<td>70-90%</td>
<td>Effective</td>
</tr>
<tr>
<td>50-70%</td>
<td>Questionable</td>
</tr>
<tr>
<td>Below 50%</td>
<td>Ineffective</td>
</tr>
</tbody>
</table>

To determine additional differences between baseline and intervention conditions, calculations of mean levels of behavioral occurrence and trend analyses were
conducted and compared. In addition, immediacy of behavioral change in relation to the implementation of intervention was also analyzed. The results and analysis of the teacher administered behavior-specific praise intervention are presented in the following chapter.

Social Validity

In the social sciences, it is important that treatments are meaningful (i.e., social validity) not only for the participants in a research study, but also for consumers of such research (e.g., students, parents, teachers, school administrators, interventionists).

According to Bailey and Burch (2002), there are three critical questions when determining whether an intervention has social validity: (a) Are the goals of the study shared by participants in the study and consumers in society, (b) Is the intervention acceptable to both participants and consumers, and (c) Will results from the study satisfy consumers of such research? In order to evaluate social validity in this study, all three teacher participants were questioned by the researcher prior to the start of the study.

For the first question regarding shared goals, teacher participants were asked if they had any concerns about student behavior, and whether they would like to participate in the current study. For the second question related to the acceptability of interventions, teacher participants were asked if teacher praise was something that they believed they could administer, would be willing to use, and would make a difference in the classroom. Teacher participants also received a day of training. Finally, for the third question regarding research results that satisfy consumers, teacher participants were asked at the end of the study whether they felt that they had observed changes in the student
participants’ behavior and whether they felt that such changes would be lasting, if teacher praise were continued.
CHAPTER III

RESULTS

The purpose of this study was to examine the effects of teacher administered behavior-specific praise on promoting positive behavior in students, as demonstrated by exhibiting on-task behavior and decreasing negative behaviors, in addition to examining the feasibility of delivering it at 1-minute, 3-minute, and 5-minute intervals in three different general or special education classrooms. The specific objectives of this study included examining the following questions:

1. What are the effects of teacher administered behavior-specific praise on promoting positive behavior in students, as demonstrated by exhibiting on-task behavior in the classroom setting?

2. What are the effects of teacher administered behavior-specific praise on decreasing negative behavior in students (i.e., verbal, out-of-seat, touching, and non-engagement) in the classroom setting?

3. What differences in positive and negative student behavior are observed when teachers are prompted to deliver behavior-specific praise at 1-minute, 3-minute, and 5-minute intervals?

The goal of the study was to extend the research that directly relates to the need of teachers (i.e., general and special education) to find effective, practical, and nonintrusive means for increasing positive classroom behaviors. The following analysis includes both the individual results for each of the three student participants (i.e., Samantha, Michael, and Christopher), and for the three teacher participants (i.e., Teacher Julie, Teacher
Christine, and Teacher Nicole) whom, although not primary participants in the study, did serve in a critical and fundamental role by administering behavior-specific-praise during classroom observations.

**Discussion and Analysis for Samantha**

The findings for Samantha are illustrated in Figures 1–15. Baseline data were variable and showed a very low level of occurrence for the on-task target behavior; however an increase in on-task behavior occurred when Samantha’s teacher was prompted to deliver behavior-specific praise in three different delivery intervals (i.e., 1-minute, 3-minute, and 5-minute). In addition, the occurrence of four off-task behaviors (i.e., verbal, out-of-seat, touching, and non-engagement) were also analyzed in relation to each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise. Such analysis included the examination of changes in means, levels, trend, and the rapidity of behavioral change for both the on-task target behavior and the occurrence of off-task behaviors.

**On-Task Behavior**

The findings for Samantha’s on-task target behavior are illustrated in Figures 1–3. Overall, the results show that all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for the delivery of teacher administered behavior-specific praise were effective for increasing Samantha’s on-task behavior. The change in mean level during the three intervention phases consistently supported the effectiveness of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for the delivery of teacher administered behavior-specific praise, as all three yielded an increase in on-task
behavior when compared to baseline, regardless of how frequently teacher administered behavior-specific praise was delivered.

**One minute intervention prompt for delivery of teacher administered behavior-specific praise.** The 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was shown to be effective for increasing Samantha’s on-task behavior. During baseline, Samantha’s mean level of on-task behavior was 40.4% (range = 12%–60%) with a slightly decelerating trend. Based on the trend line, the on-task target behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Samantha’s on-task behavior was 35%. When the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s on-task behavior immediately increased to 47% in the first session. This accounted for an immediate increase of 12 percentage points in on-task behavior. Such a shift in level from the end of baseline to the beginning of intervention provided support for the effectiveness of the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise in increasing Samantha’s on-task behavior.

In addition, the mean level increased to 64.9% (range = 10%–100%) during the first intervention phase from that of 40.4% in baseline. This accounted for an increase in on-task behavior of 24.5 percentage points, thus further demonstrating the strength of the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise for increasing Samantha’s on-task behavior. There was also an increasing, therapeutic trend (in the opposite direction of that which was displayed in baseline) throughout the
first intervention phase. In addition, there was a rapid and immediate change in Samantha’s on-task behavior when treatment began in the first intervention phase as indicated by the increase in mean level (i.e., 1-minute = 65). The percentage of nonoverlapping data was 72%, resulting in a rating of *Effective*.

During the second intervention phase, Samantha’s mean level of on-task behavior further increased to 78.2% (range = 40%–92%). This accounted for an increase in the mean of 13.3 percentage points between the first and second interventions, and an increase of 37.8 percentage points when comparing the mean for on-task behavior from the second intervention phase with the mean displayed in baseline. The effect of the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was further demonstrated when Samantha’s on-task behavior increased to 82% in the first session of the second intervention phase. One overlapping data point occurred between baseline and the second intervention phase. The percentage of nonoverlapping data was 83%, resulting in a rating of *Effective*. Although there was a decelerating trend in the second intervention phase, overall the data show that the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was effective for increasing Samantha’s on-task behavior.

**Three minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level of on-task behavior was 40.4% (range = 12%–60%), with a slightly decelerating trend. Based on the trend line, the on-task target behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Samantha’s on-task behavior was
When the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s on-task behavior immediately increased to 65% in the first session. This accounted for a direct increase of 30 percentage points. Such a shift in performance level from baseline to intervention demonstrated the effectiveness of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise for increasing Samantha’s on-task behavior. In addition, there was a reversal of the trend in the first intervention phase from that displayed in baseline, thus indicating a move in a therapeutic direction.

The mean in the first intervention phase also increased to 61.9% (range = 0%–97%), from 40.4% in baseline. This change accounted for an increase of 21.5 percentage points, thus again demonstrating the strength of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise for increasing Samantha’s on-task behavior; however the percentage of nonoverlapping data between baseline and the first intervention phase was 67%, with a Questionable rating. Although there was variability in the data in the first intervention phase, there remained an observable and rapid change in Samantha’s on-task performance level in a therapeutic direction, which further provided additional support for the effectiveness of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.

During the second intervention phase, Samantha’s mean level of on-task behavior further increased to 62.7% (range = 0%–93%). This change accounted for an increase in the mean of 0.8 percentage points between the first and second interventions, and an increase of 22.3 percentage points when comparing the mean for on-task behavior from
the second intervention phase with the mean displayed in baseline; however the percentage of nonoverlapping data was 67%, with a Questionable rating. The effect of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was further demonstrated across the second and third intervention phases, as there was an accelerating trend in both phases. In addition, Samantha’s mean level of on-task behavior increased to 77.7% (range = 60%–95%) in the third intervention phase, a change which accounted for an increase of 37.3 percentage points from the mean in baseline. With the exception of Sessions 20 and 30 which were very low, there was an increase in on-task behavior across phases. The percentage of nonoverlapping data was 83%, resulting in a rating of Effective. Consequently, the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was shown to be effective for increasing Samantha’s on-task behavior.

**Five minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level of on-task behavior was 40.4% (range = 12%—60%) with a slightly decelerating trend. Based on the trend observed, Samantha’s on-task target behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Samantha’s on-task behavior was 35%. When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s on-task behavior immediately increased to 68% in the first session. This change accounted for a 33 percentage point increase. Such a change in level offered support for the strength of the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.
in increasing Samantha’s on-task behavior. In addition, the mean level during intervention was 55.8% (range = 7%–92%), a favorable increase in on-task behavior from the mean of 40.4% displayed in baseline. The change accounted for an increase of 15.4 percentage points, however the percentage of nonoverlapping data was 50%, with a *Questionable* rating at the lowest end of the range.

Although there was variability in the data and the trend was decelerating during intervention, the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise showed effectiveness when a comparison was made between Samantha’s intervention mean level of on-task behavior with that displayed in baseline. Overall, the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was found to be effective for increasing Samantha’s on-task behavior when compared to the percentage of on-task behavior in baseline.

Overall, the results support the use of all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise, for increasing Samantha’s on-task behavior when comparing results from treatment conditions with those found in baseline. Upon examining the mean levels for all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise, only minimal differences were found between the results for the 1-minute and 3-minute intervention prompts, as both yielded a substantially higher percentage of on-task behavior from that which occurred in baseline. Although the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise showed an increase in the mean level when compared with
baseline, the effect of the 5-minute prompt was minimal in comparison to the gains secured in on-task behavior when using the 1-minute or 3-minute prompt for delivery of teacher administered behavior-specific praise.

Figure 1. Percentage of on-task behavior observed for Samantha across alternating treatments.
Figure 2. Percentage of on-task behavior observed for Samantha across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 3. Percentage of on-task behavior observed for Samantha across baseline and intervention conditions with means and trend lines.
The intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise were shown to be effective for increasing Samantha’s on-task behavior when compared to baseline. Although all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise were successful in increasing Samantha’s on-task behavior from that in baseline, results showed the greatest increase in on-task behavior occurred with the use of the 1-minute or 3-minute intervention prompts. The following analysis examines the effect of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute) for delivery of teacher administered behavior-specific praise on each of Samantha’s four off-task behaviors.

Off-Task Behavior

Samantha’s off-task behaviors were separated into four categories for the purpose of data collection: verbal, out-of-seat, touching, and non-engagement. In addition, each off-task behavior was examined to determine whether the intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise were effective in decreasing off-task behaviors. The following analysis addresses the four subcategories of Samantha’s off-task behavior.

Verbal off-task behavior. The findings for Samantha’s verbal off-task behavior are illustrated in Figures 4–6. Overall, the findings show that the intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise were effective for decreasing Samantha’s verbal off-task behavior. The following analysis examines each of the three intervention prompts (i.e.,
1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise and their impact on Samantha’s verbal off-task behavior.

**Verbal off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level of off-task verbal behavior was 24% (range = 8%–43%) with an accelerating trend. Based on the trend line, verbal off-task behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Samantha’s verbal off-task behavior was 30%. When the 1-minute intervention prompt for teacher administered behavior-specific praise was introduced, Samantha’s verbal off-task behavior immediately increased to 42%.

Such an increase did not immediately lend support for the intervention’s effectiveness, as this change accounted for a 12-point percentage increase. However, in the second session, Samantha’s verbal off-task behavior decreased to 15%. This was an improvement and shift in a therapeutic direction, as the goal was to increase Samantha’s on-task behavior while decreasing her off-task behaviors, including verbal off-task.

Samantha’s mean level for verbal off-task behavior in the first intervention phase was 16.6% (range = 0%–42%). This was a definite improvement from the baseline mean (24%), thus accounting for a decrease of 7.4 percentage points. Although the percentage of nonoverlapping data between baseline and the initial intervention phase was 17%, with an Ineffective rating, and there was an accelerating trend in a nontherapeutic direction in the first intervention phase with some variability; there was a decrease in the performance
level of off-task behavior during intervention. Such a change did provide support for the strength of the intervention.

In the second intervention phase, the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise continued to show effectiveness in decreasing Samantha’s verbal off-task behavior, as indicated by the decelerating trend in a therapeutic direction. The mean level in the second intervention condition was 11.8% (range 5%–18%). This also provided support for the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise, as this was a decrease of 12.2 points from the baseline mean (24%) and a decrease of 4.8 points from the mean in the first intervention phase (16.6%). There was also very little variability in the data in the second intervention phase. Although the percentage of nonoverlapping data between baseline and the second intervention phase was 17%, with an Ineffective rating, overall, the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was found to be effective in decreasing Samantha’s off-task behavior, as there was a 50% decrease in verbal off-task behavior.

*Verbal off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.* The 3-minute intervention prompt for teacher administered behavior-specific praise was also shown to be effective in decreasing Samantha’s verbal off-task behavior. During baseline, Samantha’s mean level of verbal off-task behavior was 24% (range = 8%–43%) and there was an increasing trend in a nontherapeutic direction. Based on the trend line, verbal off-task behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline,
Samantha’s verbal off-task behavior was 30%. When the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s verbal off-task behavior initially increased to 33% in the first session; however the second session yielded 13%, which led to a decrease in verbal off-task behavior from not only the first session of intervention but also from that which was displayed in baseline. There was also a reversal of trend in the first intervention phase from that displayed in baseline and the mean level decreased in the first intervention phase from 24% in baseline to 20.3% (range = 3%–40%). This change accounted for a decrease of 3.7 points; however the percentage of nonoverlapping data was 22%, with an Ineffective rating.

In the second intervention phase the mean level continued to decrease to 11.8% (range = 5%–17%). This further showed the effectiveness of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise; however, the percentage of nonoverlapping data between baseline and the second intervention phase was 33%, yielding an Ineffective rating. Finally, in the third intervention phase, the mean was 16.3% (range = 2%–38%). Although this was a nontherapeutic increase of 4.5 percentage points from the mean level displayed in the second intervention condition, it was still an improvement of 7.7 percentage points from that displayed in baseline. The percentage of nonoverlapping data between baseline and the third intervention phase was 33%, with an Ineffective rating; however there was a decelerating trend in the third intervention phase, thus demonstrating the overall strength of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise and its effectiveness for decreasing Samantha’s verbal off-task behavior.
Verbal off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise. During baseline, Samantha’s mean level of verbal off-task behavior was 24% (range = 8%–43%). In addition, there was an accelerating trend in a nontherapeutic direction. Based on the trend line, Samantha’s verbal off-task behavior would continue in a nontherapeutic direction without intervention. In the last session of baseline, Samantha’s verbal off-task behavior was 30%. When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s verbal off-task behavior immediately decreased to 13% in the first session. This change accounted for a 17 percentage point decrease in verbal off-task behavior. Such a shift initially supported the effectiveness of the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise for decreasing Samantha’s verbal off-task behavior. The intervention mean level was 19.6% (range = 2%–43%). Although a slight and favorable 4.4 percentage point decrease from the mean level displayed in baseline, treatment effects were minimal for the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise intervention. The percentage of nonoverlapping data between baseline and intervention was 17%, with an Ineffective rating.

Overall, the results support the use of all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute) for delivery of teacher administered behavior-specific praise for decreasing Samantha’s verbal off-task behavior when comparing results from treatment conditions with those found in baseline. Upon examining the mean levels for all three intervention prompts, the 1-minute intervention prompt for delivery of teacher
administered behavior-specific praise was found to be the most effective, as there was a
decrease in Samantha’s verbal off-task behaviors of approximately 50%. While the
3-minute intervention prompt also produced an approximate 50% decrease in verbal
off-task behavior during the second intervention phase, verbal off-task behavior later
increased in the third intervention phase. Thus, the 3-minute and 5-minute intervention
prompt were not nearly as favorable as the results secured when the 1-minute intervention
prompt was in effect. The 3-minute intervention prompt, however, was the second most
effective and the 5-minute intervention prompt was the least effective in decreasing
Samantha’s verbal off-task behavior.

Figure 4. Percentage of verbal off-task behavior observed for Samantha across
alternating treatments.
Figure 5. Percentage of verbal off-task behavior observed for Samantha across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 6. Percentage of verbal off-task behavior observed for Samantha across baseline and intervention conditions with means and trend lines.
**Out-of-seat off-task behavior.** The findings for out-of-seat off-task target behavior are illustrated in Figures 7–9. Overall, the results show that the intervention prompts for delivery of teacher administered behavior-specific praise were effective for decreasing Samantha’s out-of-seat off-task behavior. The following analysis examines each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise and their impact on Samantha’s out-of-seat off-task behavior.

**Out-of-seat off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level of out-of-seat off-task behavior was 15.2% (range = 0%–37%) and there was a decelerating trend. Based on the trend line, Samantha’s out-of-seat off-task behavior was expected to continue in a therapeutic direction without intervention; however the greater the decrease in off-task behavior the better. In the last session of baseline, Samantha’s out-of-seat off-task behavior was 25%. Once the 1-minute intervention prompt was implemented, Samantha’s out-of-seat off-task behavior decreased to 18% in the first session. This shift in performance level accounted for a 7 percentage point decrease in out-of-seat off-task behavior. Although the percentage of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating, Samantha’s mean level for out-of-seat off-task behavior in the first intervention phase was 7.9% (range = 0%–47%). This change was a decrease of 7.3 points from the mean level displayed in baseline. Such a decrease in the mean from baseline to intervention supported the effectiveness of the 1-minute intervention prompt for teacher administered behavior-specific praise. In
addition, the trend in the first treatment condition continued to decelerate in a favorable direction, thus approaching a more desirable level of performance.

During the second intervention phase Samantha’s mean level increased to 11.7% (range = 0%–55%) from 7.9% in the first intervention phase. Although this change accounted for a 3.8 percentage point increase from the mean in the first intervention phase (7.9%), it was still a 3.5 percentage point decrease from the baseline mean (15.2%). The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, yielding an *Ineffective* rating. In addition, a reversal of the therapeutic trend occurred in the second intervention phase, as there was a high level of out-of-seat off-task behavior in Session 33. With the exception of Session 33, however, there was more stability in the data. In addition, in two sessions there were zero occurrences of out-of-seat behavior. This provided evidence that the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was effective for decreasing Samantha’s out-of-seat off-task behavior, although the decrease was minimal.

*Out-of-seat off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Samantha’s mean level of out-of-seat off-task behavior was 15.2% (range = 0%–37%). Based on the decelerating trend line, out-of-seat off-task behavior would continue to decrease in a therapeutic direction without future intervention; however any additional decrease in out-of-seat behavior would benefit the participant. The percentage of nonoverlapping data between baseline and the first intervention phase was 0%, with an *Ineffective* rating; however in the last session of baseline, Samantha’s out-of-seat off-task behavior was 25%, and in the first
session of intervention her out-of-seat off-task behavior was 0%. This accounted for an immediate 25 percentage point shift in level, thus demonstrating the positive effect of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise on Samantha’s out-of-seat off-task behavior. In addition, the mean for the first intervention phase was 9.4% (range = 0%–32%). This change accounted for a decrease of 5.8 percentage points from the mean in baseline.

The trend in the first intervention phase was decelerating; however there was a nontherapeutic reversal in the second intervention phase because of the high rate of out-of-seat behavior in one session. In addition, the mean slightly increased in the second intervention phase to 9.7% (range = 0%–58%) from 9.4% in the first intervention phase. This was an increase of 0.3 percentage points in an undesirable direction and the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating. Finally, in the third intervention phase the mean was 5.5% (range = 0%–13%). This change accounted for a decrease of 4.2 points from the second intervention phase and a decrease of 9.7 points from the mean displayed in baseline. Although the percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an Ineffective rating, there was another trend reversal in a therapeutic direction, thus providing support that overall, the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was effective for maintaining a decrease in Samantha’s out-of-seat off-task behavior.

**Out-of-seat off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level
of out-of-seat off-task behavior was 15.2% (range = 0%–37%). In addition, there was a decelerating trend, suggesting that Samantha’s out-of-seat off-task behavior would continue to decrease in a therapeutic direction without intervention. In the last session of baseline, Samantha’s out-of-seat off-task behavior was 25%. When the 5-minute intervention prompt was introduced, the first data session was 23%, accounting for a very minimal decrease of 2 percentage points. In the first intervention phase, Samantha’s mean level of out-of-seat off-task behavior was 11.7% (range = 0%–65%). This change accounted for a 3.5 percentage point decrease in the mean level from baseline to intervention. The trend in the intervention phase, however, was accelerating in a nontherapeutic direction and the percentage of nonoverlapping data between baseline and intervention was 0%, with an Ineffective rating. Furthermore, in Session 24, there was a high occurrence of out-of-seat off-task behavior. Overall, the 5-minute intervention prompt for teacher administered behavior-specific praise was shown to be minimally effective for decreasing Samantha’s out-of-seat off-task behavior.

Upon examination of the means for all three interventions, the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was the most effective for decreasing Samantha’s out-of-seat off-task behavior. When the 3-minute intervention prompt was in effect, there was a nearly two-thirds decrease in out-of-seat off-task behavior. In addition, there were many sessions with zero incidents of out-of-seat off-task behavior. When the 1-minute and 5-minute intervention prompts were implemented, results were positive although minimal, with a few sessions of zero
incidents of out-of-seat off-task behavior when the 1-minute intervention prompt was in effect.

![Graph](image)

**Figure 7.** Percentage of out-of-seat off-task behavior observed for Samantha across alternating treatments.
Figure 8. Percentage of out-of-seat off-task behavior observed for Samantha across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 9. Percentage of out-of-seat off-task behavior observed for Samantha across baseline and intervention conditions with means and trend lines.
**Touching off-task behavior.** The findings for Samantha’s touching off-task behavior are illustrated in Figures 10–12. Overall, the 1-minute and 3-minute intervention prompts for teacher administered behavior-specific praise had only a minimal effect on decreasing Samantha’s touching off-task behavior. Findings for the 5-minute intervention prompt resulted in an increase that was three times that of baseline. The following analysis examines each of the three intervention prompts for teacher administered behavior-specific praise (i.e., 1-minute, 3-minute, and 5-minute interval) and their effect on Samantha’s touching off-task behavior.

**Touching off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise intervention.** During baseline, Samantha’s mean level of touching off-task behavior was 3.3% (range = 0%–10%). Based on the very slightly decelerating trend line, Samantha’s off-task behavior for touching was expected to continue in a direction approaching an even more desirable level without intervention.

In the last session of baseline, Samantha’s off-task behavior for touching was 3%. When the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, off-task behavior for touching initially increased slightly to 7% in the first session. This change accounted for a 4 percentage point increase in an undesirable direction. Although there was a slight and decelerating trend in the first intervention phase, the mean level was 6.4% (range = 0%–17%). This change accounted for an increase of 3.1 percentage points from the baseline mean (3.3%). The percentage of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating.
In the second intervention phase, the mean level decreased to 3.2% (range = 0%–7%). This accounted for a decrease of 3.2 percentage points from the first intervention phase and 0.1 percentage point from the mean level displayed in baseline. Although there was a decelerating trend in the second phase of intervention, the overall effect resulted in a 0.1 percentage point difference in the mean level of Samantha’s touching off-task behavior from that displayed in baseline. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an *Ineffective* rating.

**Touching off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level of touching off-task behavior was 3.3% (range = 0%–10%). In addition, there was a decelerating trend. Based on the trend line, the off-task touching behavior would continue to occur in a therapeutic direction without intervention. In the last session of baseline, Samantha’s touching off-task behavior was 3%. When the 3-minute prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s off-task behavior immediately decreased to 0%. Although a favorable shift in level, this decrease of 3 percentage points was minimal. The mean for the 3-minute intervention prompt for teacher administered behavior-specific praise in the first intervention phase was 9.7% (range = 0%–50%). This change in mean level resulted in an increase of 6.4 percentage points for touching off-task behavior. The percentage of nonoverlapping data between baseline and the first intervention phase was 0%, resulting in an *Ineffective* rating.
In the second intervention phase, there was a slightly accelerating trend. Such a trend would typically not seem to support the effectiveness of the 3-minute intervention prompt; however the mean level for the second intervention phase decreased to 2.7% (range = 0%–7%) which was 7.0 percentage points lower than that in the first intervention phase. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an *Ineffective* rating. In the third intervention phase the mean level was 2.3% (range = 0%–7%) and there was a reversal of the trend. By Session 40, a 1.0 decrease from the mean displayed in baseline was achieved when the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was in effect. The percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an *Ineffective* rating.

**Touching off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level of touching off-task behavior was 3.3% (range = 0%–10%), and there was a slightly decelerating trend. Based on the trend line, the off-task behavior would be expected to continue in a therapeutic direction without intervention but any additional decrease in off-task behavior would still be beneficial. In the last session of baseline, Samantha’s off-task behavior was 3% for touching off-task behavior. When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s off-task behavior immediately decreased to 0% in the first session; however there was a reversal of the therapeutic trend during intervention. The mean level for intervention was 9.9% (range = 0%–63%). This accounted for a 6.6 percentage point
increase in the mean level, which was three times the amount of off-task behavior observed in baseline. In general, the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise did not prove to be effective in decreasing Samantha’s touching off-task behavior.

Overall, the three intervention prompts for delivery of teacher administered behavior-specific praise were not found to be very effective for decreasing Samantha’s touching off-task behavior when comparing results from treatment conditions with those found in baseline. Upon examining the mean levels for all three intervention prompts, both the 1-minute and 3-minute intervention prompts were found to have decreased Samantha’s touching off-task behavior by a point or less. The least favorable results occurred when the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was in effect, as there was an increase in touching off-task behavior during the first intervention phase that was three times that which was displayed in baseline.
Figure 10. Percentage of touching off-task behavior observed for Samantha across alternating treatments.
**Figure 11.** Percentage of touching off-task behavior observed for Samantha across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 12. Percentage of touching off-task behavior observed for Samantha across baseline and intervention conditions with means and trend lines.
**Non-engagement off-task behavior.** The findings for Samantha’s non-engagement off-task behavior are illustrated in Figures 13–15. All three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise proved effective for decreasing Samantha’s non-engagement off-task behavior, with the 1-minute and 3-minute intervention prompts proving the most effective. The following analysis examines each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise and their impact on Samantha’s non-engagement off-task behavior.

**Non-engagement off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Samantha’s mean level of off-task behavior was 19.9% (range = 0%–57%) with a very slight decelerating trend. Based on the trend line, Samantha’s non-engagement off-task behavior would be expected to continue to occur in a therapeutic direction without intervention. In the last session of baseline, Samantha’s off-task behavior was 10%. When the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s off-task behavior immediately decreased to 2% in the first session. This change accounted for an immediate shift of 8 percentage points in level between the intervention phase and baseline. In addition, there was a continuation of the decelerating trend in the first intervention phase. Samantha’s mean level also decreased to 8.6% (range = 0%–78%) in the first intervention phase from 19.9% in baseline. This accounted for an 11.3 percentage point decrease in off-task behavior from baseline to intervention. With
the exception of Session 14, there was some stability observed in the data. Although the percentage of nonoverlapping data was 0%, with an Ineffective rating, there was a change in a favorable direction which occurred in Samantha’s performance level of off-task behavior in the first intervention phase.

In the second intervention phase, Samantha’s mean level was even lower at 0.0%, as Samantha experienced no incidents of non-engagement off-task behavior. This change in mean level accounted for a decrease of 19.9 percentage points when compared to the baseline mean, and a decrease of 8.6 percentage points when compared to the mean in the first intervention phase. Although the percentage of nonoverlapping data was 0%, with an Ineffective rating, overall, the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise proved successful as Sabrina’s non-engagement behavior was completely eliminated in the second intervention phase.

Non-engagement off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise. During baseline, Samantha’s mean level of non-engagement off-task behavior was 19.9% (range = 0%–57%). Based on the decelerating trend line, the off-task behavior was expected to continue to decrease in a therapeutic direction without intervention. In the last session of baseline, Samantha’s off-task behavior was 10%. When the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Samantha’s off-task behavior immediately decreased to 2% in the first session. This change accounted for a decrease of 8 percentage points between baseline and intervention.
There was a decelerating trend in the first intervention phase and a mean level of 4.3% (range = 0%–30%). Such a decrease of 15.6 percentage points between the baseline and intervention mean further demonstrated the effectiveness of the 3-minute intervention prompt for teacher administered behavior-specific praise for decreasing Samantha’s non-engagement off-task behavior, however the percentage of nonoverlapping data was 0%, with an Ineffective rating. In the second intervention phase, there was a decelerating trend, however the mean level increased to 15.5% (range = 0%–85%), and the percentage of nonoverlapping data was 0%, with an Ineffective rating. Although this change accounted for an 11.2 percentage point increase from the first intervention phase, it also accounted for a 4.4 percentage point decrease from the mean displayed in baseline.

Finally, in the third intervention phase, the mean was 0.8% (range = 0%–5%). This was a decrease in mean level from both the baseline and the second intervention phase. With the exception of Session 30 in the second intervention phase, data remained fairly stable throughout both the second and third intervention phases with many sessions of zero occurrences of off-task behavior. There was, however, a very slight accelerating trend in the third intervention phase, and the percentage of nonoverlapping data was 0%, with an Ineffective rating. Overall, the 3-minute intervention prompt for delivering behavior-specific praise was effective for decreasing Samantha’s non-engagement off-task behavior.

*Non-engagement off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Samantha’s mean level of non-engagement off-task behavior was 19.9% (range = 0%–57%). Based
on the decelerating trend line, the off-task behavior would continue to occur in a therapeutic direction without intervention. In the last session of baseline, Samantha’s off-task behavior was 10%. When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, a 5 percentage point shift in level occurred, as Samantha’s non-engagement off-task behavior immediately decreased. The intervention mean was 10.1% (range = 0%–52%), and there was a decelerating trend in a therapeutic direction. This change accounted for a decrease of 9.8 percentage points between the baseline and intervention mean, thus proving that although the decrease was not as great as that achieved with the 1-minute or 3-minute intervention prompt, the 5-minute intervention prompt for teacher administered behavior-specific praise was effective for decreasing Samantha’s non-engagement off-task behavior, although the percentage of nonoverlapping data was 0%, with an Ineffective rating.

Overall, all three intervention prompts for teacher administered behavior-specific praise (i.e., 1-minute, 3-minute, and 5-minute intervals) proved effective for decreasing Samantha’s non-engagement off-task behavior; however, the 1-minute and 3-minute intervention prompts were especially effective as results showed many sessions with zero occurrences of off-task behavior. Finally, the 5-minute intervention prompt was the least successful of the three interventions for decreasing Samantha’s non-engagement off-task behavior, although the intervention mean level was still an improvement from that which was displayed in baseline.
Figure 13. Percentage of non-engagement off-task behavior observed for Samantha across alternating treatments.
Figure 14. Percentage of non-engagement off-task behavior observed for Samantha across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 15. Percentage of non-engagement off-task behavior observed for Samantha across baseline and intervention conditions with means and trend lines.
Discussion and Analysis for Michael

The findings for this participant are illustrated in Figures 16–30. Baseline data were variable and showed a low level of occurrence for the on-task target behavior, however an increase in on-task behavior occurred when each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for teacher administered behavior-specific praise were applied. In addition, the occurrence of four off-task behaviors (i.e., verbal, out-of-seat, touching, and non-engagement) were also analyzed in relation to each of the three intervention prompts for teacher administered behavior-specific praise which were applied. The following analysis includes the examination of the change in means, levels, trend, and the immediacy of behavioral change as it pertains to both the on-task target behavior and the occurrence of the four off-task behaviors.

On-Task Behavior

The findings for the on-task target behavior are illustrated in Figures 16–18. Overall, the results show that all three intervention prompts for delivery of teacher administered behavior-specific praise (i.e., 1-minute, 3-minute, and 5-minute intervals) were effective for increasing Michael’s on-task behavior. In addition, the change in mean level, upon delivery of all three intervention prompts, consistently supported the effectiveness of the three intervention prompts for teacher administered behavior-specific praise for increasing Michael’s on-task behavior when compared to baseline.

One minute intervention prompt for delivery of teacher administered behavior-specific praise. During baseline, Michael’s mean level of on-task behavior was
41.1% (range = 27%–65%) with a decelerating trend. Based on the trend line, the on-task target behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Michael’s on-task behavior was 55%. When the 1-minute intervention prompt for teacher administered behavior-specific praise was introduced, Michael’s on-task behavior immediately increased to 73% in the first session. This change accounted for an increase of 18 percentage points in on-task behavior. Such a shift in level from the end of baseline to the beginning of intervention provided support for the effectiveness of the 1-minute intervention prompt for teacher administered behavior-specific praise in increasing Michael’s on-task behavior.

In addition, the mean level increased to 81.5% (range = 58%–95%) during the first intervention phase from that of 41.1% in baseline. This change accounted for an increase of 40 percentage points in on-task behavior, thus demonstrating the strength of the 1-minute intervention prompt for teacher administered behavior-specific praise, for increasing Michael’s on-task behavior. In addition, there was an immediate reversal of trend in the first intervention phase, further showing the immediate effect of the 1-minute intervention prompt for delivering teacher administered behavior-specific praise and reversing Michael’s performance level in a therapeutic direction. Such immediacy of change in Michael’s level of on-task behavior further demonstrated the presence of a functional relationship between Michael’s on-task behavior and the 1-minute intervention prompt for delivering teacher administered behavior-specific praise. The percentage of nonoverlapping data between baseline and intervention was 94%, resulting in a Very Effective rating.
During the second intervention phase, Michael’s mean level of off-task behavior was 78.7% (range = 62%–87%). Although this was a slight decrease of 2.8 percentage points in mean level from that displayed in the first intervention phase, it was still an increase of 37.2 percentage points from the mean in baseline. Such an increase in Michael’s on-task behavior further demonstrates the effectiveness of the 1-minute intervention prompt for teacher administered behavior specific praise. Overall, the evidence supported that the 1-minute intervention prompt for teacher administered behavior-specific praise was very effective for increasing Michael’s on-task behavior.

The percentage of nonoverlapping data between baseline and the second intervention was 83%, with an Effective rating.

Three minute intervention prompt for delivery of teacher administered behavior-specific praise. During baseline, Michael’s mean level of on-task behavior was 41.1% (range = 27%–65%), with a slightly decelerating trend. Based on the trend line, the on-task target behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Michael’s on-task behavior was 55%. When the 3-minute intervention prompt for delivering teacher administered behavior-specific praise was introduced, Michael’s on-task behavior immediately increased to 63% in the first session. This accounted for an immediate increase of 8 percentage points. Such a positive shift in performance level from baseline to intervention demonstrated the effectiveness of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise for increasing Michael’s on-task behavior. In addition, a neutral
trend was established in the first intervention phase. This, too, was a positive change when compared to the trend in baseline.

In the first intervention phase the mean increased to 73.2% (range = 60%–88%), from 41.1% in baseline. This change accounted for an increase of 32.1 percentage points, thus again demonstrating the strength of the teacher administered 3-minute intervention prompt for delivery of teacher administered behavior-specific praise for increasing Michael’s on-task behavior. Although there was variability in the data in the first intervention phase, there was an increase in Michael’s on-task performance level as indicated by the mean level of on-task behavior which further provided additional support for the effectiveness of the 3-minute intervention prompt for teacher administered behavior-specific praise. The percentage of nonoverlapping data between baseline and intervention was 72%, resulting in an Effective rating.

During the second intervention phase, Michael’s mean level of on-task behavior further increased to 83.7% (range = 75%–90%). This change accounted for an increase in the mean of 10.5 percentage points between the first and second interventions, and an increase of 42.6 percentage points when comparing the mean for on-task behavior from the second intervention phase with the mean displayed in baseline. Furthermore, there were no overlapping data points between baseline and the second intervention phase. This resulted in a percentage of nonoverlapping data score of 100%, with a Very Effective rating. The effect of the 3-minute intervention prompt for teacher administered behavior-specific praise was further demonstrated across the second and third intervention phases, as there was an accelerating trend in a therapeutic direction, in both phases. In
addition, Michael’s mean level of on-task behavior in the third intervention phase increased to 92.0% (range = 85%–97%) in the third intervention phase. Overall, the 3-minute intervention prompt for teacher administered behavior-specific praise was effective for increasing Michael’s on-task behavior, as there was a consistent increase in Michael’s on-task behavior across all phases. There were no overlapping data points between baseline and the third intervention phase. This also resulted in a nonoverlapping data score of 100%, with a *Very Effective* rating.

**Five minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Michael’s mean level of on-task behavior was 41.1% (range = 27%–65%) with a decelerating trend. Based on the trend line, Michael’s on-task target behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Michael’s on-task behavior was 55%; however, when the 5-minute intervention prompt for teacher administered behavior-specific praise was introduced, Michael’s on-task behavior immediately decreased to 38% in the first session. This change accounted for a 17 percentage point decrease. Such a decrease in level did not offer support for the strength of the 5-minute intervention prompt for teacher administered behavior-specific praise in increasing Michael’s on-task behavior. The percentage of nonoverlapping data between baseline and intervention was 33%, with an *Ineffective* rating; however the mean level during intervention was 59.6% (range = 37%–85%). This change accounted for an increase of 18.5 percentage points from the mean in baseline. Even though there was variability in the data during the intervention phase, there was a reversal of the trend in a therapeutic
direction. Overall, the 5-minute intervention prompt for teacher administered behavior-specific praise proved effective when comparing Michael’s mean level and trend for on-task behavior with that displayed in baseline.

Although all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for the delivery of teacher administered behavior-specific praise were found to be effective in increasing Michael’s mean level of on-task behavior when compared to baseline, the 3-minute intervention prompt was the most effective, followed by the 1-minute intervention prompt. Finally, the 5-minute intervention prompt was the least effective for increasing Michael’s on-task behavior, however, such a substantial increase in on-task behavior once more demonstrated the strength of the intervention prompt for teacher administered behavior-specific praise for increasing Michael’s on-task behavior.
Figure 16. Percentage of on-task behavior observed for Michael across alternating treatments.
Figure 17. Percentage of on-task behavior observed for Michael across baseline and intervention conditions with percentage of nonoverlapping data (PND)
Figure 18. Percentage of on-task behavior observed for Michael across baseline and intervention conditions with means and trend lines.
Michael’s on-task behavior dramatically improved when all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise were implemented. Although all three treatment prompts led to significant changes in performance level of on-task behavior, the 3-minute intervention prompt resulted in the greatest change. The 1-minute intervention prompt was the second most successful and finally, the 5-minute intervention prompt for teacher administered behavior-specific praise was the least effective in increasing Michael’s on-task behavior. The following analysis examines the effect of the intervention prompt for delivery of teacher administered behavior-specific praise on each of Michael’s four off-task behaviors (i.e., verbal, out-of-seat, touching, and non-engagement).

**Off-Task Behavior**

Michael’s off-task behaviors were separated into four categories for the purpose of data collection: verbal, out-of-seat, touching, and non-engagement off-task behavior. In addition, each off-task behavior was examined to determine whether the intervention prompt for delivery of teacher administered behavior-specific praise (i.e., 1-minute, 3-minute, and 5-minute interval) was effective in decreasing off-task behaviors. The following analysis addresses the four subcategories of Michael’s off-task behavior.

**Verbal off-task behavior.** The findings for Michael’s verbal off-task behavior are illustrated in Figures 19–21. The 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was very successful in lowering verbal off-task behavior. The 1-minute intervention prompt showed minimal improvement in decreasing Michael’s verbal off-task behavior and the 5-minute intervention prompt had a
nontherapeutic effect on verbal off-task behaviors. The following analysis examines each of the three intervention prompts for delivery of teacher administered behavior-specific praise (i.e., 1-minute, 3-minute, and 5-minute intervals) and their impact on Michael’s verbal off-task behavior.

*Verbal off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Michael’s mean level of off-task behavior was 11.9% (range = 0%–23%). There was a slightly accelerating trend, with variability in the data. Based on the trend line, Michael’s verbal off-task behavior would continue to occur in a nontherapeutic direction without intervention. In the last session of baseline, Michael’s verbal off-task behavior was 5%. Michael’s verbal off-task behavior actually increased by three percentage points to 8% when the 1-minute intervention prompt for teacher administered behavior-specific praise was introduced. Such a nontherapeutic increase did not lend support for the intervention’s effectiveness.

Michael’s mean level for verbal off-task behavior in the first intervention phase was 7.7% (range = 0%–20%). This change was an improvement in Michael’s performance level from the baseline mean of 11.9%, thus accounting for a decrease of 4.2 percentage points in the mean level, however there was variability in the data and an accelerating trend in the first intervention phase. The percentage of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating. In the second intervention phase, the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise had nearly the same effect as that which was displayed in baseline, as Michael’s mean level of verbal on-task behavior increased to 11.5% (range =
5%–18%), with an accelerating trend that was even greater than that which was displayed in baseline or the first intervention phase. This change accounted for an increase of 3.8 percentage points from the first intervention phase to the second intervention phase, and a 0.4 percentage point increase between the second intervention phase and baseline. In addition, there was a continuation of a nontherapeutic trend with the mean level nearly identical to that which was displayed in baseline. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating. Overall, the evidence minimally supported the use of the 1-minute intervention prompt for teacher administered behavior-specific praise for decreasing Michael’s verbal off-task behavior.

**Verbal off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Michael’s mean level of verbal off-task behavior was 11.9% (range = 0%–23%) and there was an accelerating trend in a nontherapeutic direction. Based on the trend line, verbal off-task behavior would have continued to occur without direct intervention. In the last session of baseline, Michael’s verbal off-task behavior was 5%. When the 3-minute intervention prompt for teacher administered behavior-specific praise was introduced, Michael’s verbal off-task behavior immediately rose to 12% in the first session.

Such a nontherapeutic increase in both the first and second sessions did not provide initial evidence that the 3-minute intervention prompt was effective. In addition, there was a continuation of an accelerating trend in the first intervention phase. Examination of mean levels also provided minimal support for the intervention’s strength
in the first intervention phase. The mean level in the first intervention phase was 11.1% (range = 0%–25%). This change accounted for only a 0.8 percentage point decrease in the mean level from baseline to the first intervention phase. The percentage of nonoverlapping data between baseline and intervention was 0%, with an Ineffective rating.

In the second intervention phase the mean level decreased to 8.7% (range = 0%–18%). This change was in a favorable, therapeutic direction with a decelerating trend. The mean level in the second intervention phase was 2.4 percentage points lower than the mean level in the first intervention phase, and 3.2 percentage points lower than the baseline mean, however the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating. The mean level (range = 0%–7%) displayed in the third intervention phase was 3.0%. This change accounted for a continued reduction in Michael’s verbal off-task behavior, including two sessions with zero incidents of verbal off-task behavior. The decelerating trend was also maintained in the third intervention phase, however the percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an Ineffective rating. Overall, the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was found to be very effective for decreasing Michael’s verbal off-task behavior.

**Verbal off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Michael’s mean level of verbal off-task behavior was 11.9% (range = 0%–23%). In addition, there was an accelerating trend in a nontherapeutic direction. Based on the trend line, Michael’s verbal off-task behavior would continue in a nontherapeutic direction without intervention. In
the last session of baseline, Michael’s verbal off-task behavior was 5%. When the
5-minute behavior-specific praise intervention was introduced, Michael’s verbal off-task
behavior increased to 7% in the first session. This change resulted in a two percentage
point increase in a nontherapeutic direction from that in baseline. Such a shift in level did
not provide support for the 5-minute intervention.

Besides an increase in a nontherapeutic direction, the mean level also increased to
16.7% (range = 3%–38%). This change accounted for a 4.8 percentage point increase in
Michael’s verbal off-task behavior from the mean displayed in baseline. In addition, there
was variability in the data during intervention. The percentage of nonoverlapping data
between baseline and intervention was 0%, with an Ineffective rating. Therefore, the
results indicated that the 5-minute intervention prompt for teacher administered
behavior-specific praise was not effective for decreasing Michael’s verbal off-task
behavior.

Overall, the findings showed that the 3-minute intervention prompt for teacher
administered behavior-specific praise was very effective for decreasing Michael’s verbal
off-task behavior. Although the 1-minute intervention prompt at first resulted in a lower
mean level of verbal off-task behavior, the final results for the 1-minute intervention
prompt indicated that overall, the intervention had nearly the same effect as that which had
existed in baseline. The 5-minute intervention prompt however resulted in a much greater
percentage of verbal off-task behavior than was displayed in baseline. Consequently, the
3-minute intervention prompt for delivery of teacher administered behavior-specific praise
was the only treatment that showed a strong treatment effect and resulted in a reduction of
Michael’s verbal off-task behavior.

*Figure 19.* Percentage of verbal off-task behavior observed for Michael across
alternating treatments.
Figure 20. Percentage of verbal off-task behavior observed for Michael across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 21. Percentage of verbal off-task behavior observed for Michael across baseline and intervention conditions with means and trend lines.
**Out-of-seat off-task behavior.** The findings for Michael’s out-of-seat off-task behavior are illustrated in Figures 22–24. Overall, the results showed that the intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise were effective for decreasing Michael’s out-of-seat off-task behavior. The following analysis examines each of the three intervention prompts and their impact on Michael’s out-of-seat off-task behavior.

*Out-of-seat off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Michael’s mean level of out-of-seat off-task behavior was 12.1% (range = 2%–33%). The trend was accelerating in a nontherapeutic direction. Based on the trend line, Michael’s out-of-seat off-task behavior was expected to continue without intervention. In the last session of baseline, Michael’s out-of-seat off-task behavior was 13%. Once the intervention was implemented, Michael’s out-of-seat off-task behavior decreased to 8% in the first session. This shift in performance level accounted for a 5 percentage point decrease in out-of-seat off-task behavior. Furthermore, Michael’s mean level for out-of-seat off-task behavior in the first intervention phase was 2.6% (range = 0%–8%). Although the percentage of nonoverlapping data between baseline and intervention was 44%, with an *Ineffective* rating, this change was a decrease of 9.5 percentage points from the mean level displayed in baseline. Such a decrease in mean level along with the reversal of the trend in the first intervention phase strongly supported the effectiveness of the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise, for decreasing Michael’s out-of-seat off-task behavior.
During the second intervention phase, Michael’s mean level slightly increased to 3.2% (range = 0%–7%) and the percentage of nonoverlapping data between baseline and the second intervention phase was 33%, with an *Ineffective* rating. This change accounted for a 0.6 percentage point increase from the mean in the first intervention phase. There was still an 8.9 percentage point decrease from the baseline mean of 12.1%. The trend continued to decelerate in a favorable direction. In both the first and second intervention phases, there was increased stability in the data. In addition, there were 10 sessions between the first and second intervention phase with zero occurrences of out-of-seat off-task behavior. Such immediacy of change in the performance level of off-task behavior provided evidence for the effectiveness of the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise in reducing Michael’s out-of-seat off-task behavior.

**Out-of-seat off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Michael’s mean level of out-of-seat off-task behavior was 12.1% (range = 2%–33%). Based on the accelerating trend line in a nontherapeutic direction, Michael’s out-of-seat off-task behavior would continue to increase without future intervention. The percentage of nonoverlapping data between baseline and intervention was 56%, with a *Questionable* rating. Michael’s out-of-seat off-task behavior was 13% in the last session of baseline; however in the first session of the 3-minute intervention, Michael’s out-of-seat off-task behavior was 0%. This change accounted for an immediate 13 percentage point shift in level, thus demonstrating the effect of the 3-minute intervention prompt for delivery of teacher...
administered behavior-specific praise on Michael’s out-of-seat off-task behavior. In addition, the mean for the first intervention phase was 3.3% (range = 0%–22%). This accounted for a decrease of 8.8 percentage points from the mean in baseline.

The trends in both baseline and the first intervention phase were accelerating; however, there was a decrease in the trend in the second intervention phase, although the trend was still accelerating. There was also a decrease in the mean level to 2.8% (range = 0%–5%) during the second intervention phase. The percentage of nonoverlapping data between baseline and the second intervention phase was 33%, with an Ineffective rating. In the third and final intervention phase, the mean level increased to 4.2% (range = 0%–10%). Although a 1.4 percentage point increase from the mean level in the second intervention phase, this change accounted for an improvement of 7.9 percentage points from that exhibited in baseline. The percentage of nonoverlapping data between baseline and the third intervention phase was 33%, with an Ineffective rating; however there were 14 cumulative sessions during the intervention phases, with zero incidents of out-of-seat off-task behavior. Overall, the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was also shown to be effective for decreasing Michael’s out-of-seat off-task behavior.

Out-of-seat off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise. During baseline, Michael’s mean level of out-of-seat off-task behavior was 12.1% (range = 2%–33%). In addition, there was an accelerating trend, suggesting that Michael’s out-of-seat off-task behavior would continue to increase without direct intervention. In the last session of baseline, Michael’s
out-of-seat off-task behavior was 13%. When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, the first data session was 3%, thus accounting for a 10 percentage point decrease. Such an immediate shift in the performance level of Michael’s out-of-seat off-task behavior demonstrated the effectiveness of the 5-minute intervention prompt for the delivery of teacher administered behavior-specific praise, although the percentage of nonoverlapping data between baseline and intervention was 33%, with an *Ineffective* rating.

During intervention Michael’s mean level of out-of-seat off-task behavior was 5.6% (range = 0%–40%). This change accounted for a 6.5 percentage point decrease in the mean level from baseline to intervention. Although the trend during intervention was accelerating in a nontherapeutic direction and there was variability in the data, the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was still found to be effective in decreasing Michael’s out-of-seat off-task behavior.

Overall, the 1-minute and 3-minute intervention prompts for delivery of teacher administered behavior-specific praise had the greatest effect on decreasing Michael’s out-of-seat off-task behavior. The 1-minute intervention prompt resulted in the lowest percentage of out-of-seat behavior and the 3-minute intervention prompt had the second lowest percentage of out-of-seat behavior. Finally, the 5-minute intervention prompt was the least successful; however, all three interventions were found to be very effective in decreasing Michael’s out-of-seat off-task behavior when comparing mean levels.
Figure 22. Percentage of out-of-seat off-task behavior observed for Michael across alternating treatments.
Figure 23. Percentage of out-of-seat off-task behavior observed for Michael across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 24. Percentage of out-of-seat off-task behavior observed for Michael across baseline and intervention conditions with means and trend lines.
**Touching off-task behavior.** The findings for Michael’s touching off-task behavior are illustrated in Figures 25–27. Both the 1-minute and 3-minute intervention prompts for delivery of teacher administered behavior-specific praise were shown to be effective for decreasing Michael’s touching off-task behavior. In contrast, however, the 5-minute intervention prompt was not found to be effective. The following analysis examines each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise and their effect on Michael’s touching off-task behavior.

*Touching off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Michael’s mean level of touching off-task behavior was 1.8% (range = 0%–7%). Based on the accelerating trend, Michael’s touching off-task behavior was expected to continue in a nontherapeutic direction without intervention. In the last session of baseline, Michael’s off-task behavior was 3%. When the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, off-task behavior for touching immediately decreased to 0% in the first session. This change accounted for a 3 percentage point decrease in off-task behavior. Although small, this shift in the performance level of behavior did somewhat support the effect of the 1-minute intervention prompt. Although the percentage of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating, and there was a slightly accelerating trend in the first intervention phase; the mean level decreased to 1.2% (range = 0%–5%). This change accounted for a decrease of 0.6 percentage point from the mean in baseline.
In the second intervention phase, the mean level decreased to 0.8% (range = 0%–3%). This change accounted for a decrease of 0.4 percentage points from the first intervention phase and a 1.0 percentage point decrease from baseline. In addition, in the second intervention phase, there was a reversal of the trend in a therapeutic direction. Although the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an *Ineffective* rating, there were 15 sessions with zero incidents of off-task behavior between the first and second interventions combined. Therefore, the 1-minute intervention prompt for teacher administered behavior-specific praise was found to be effective in decreasing Michael’s touching off-task behavior.

**Touching off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Michael’s mean level of touching off-task behavior was 1.8% (range = 0%–7%). In addition, there was an accelerating trend. Based on the trend line, the off-task behavior was expected to continue in a nontherapeutic direction without intervention. In the last session of baseline, Michael’s touching off-task behavior was 3%. When the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Michael’s off-task behavior remained at 3%. In the second session of intervention, the percentage of off-task behavior increased again.

This shift in the performance level in a nontherapeutic direction did not initially provide evidence in support of the 3-minute intervention prompt. In addition, the mean level during the first intervention phase actually increased to 2.4% (range = 0%–8%), thus accounting for a slight increase of 0.6 percentage point, and the percentage of
nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating. There was a reversal of the trend in a therapeutic direction however, during the first intervention phase. In the second intervention phase, the mean level decreased to 0.5% (range = 0%–3%). This was a decrease of 1.9 percentage points from the first intervention phase and 1.3 percentage points from that displayed in baseline. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an *Ineffective* rating, however five of six sessions in the second intervention phase had zero occurrences of touching off-task behavior. This reduction of off-task behavior was maintained throughout the third intervention phase, as all sessions had zero incidents of off-task behavior. Consequently, the mean level for Michael’s off-task behavior was 0%, thus demonstrating the strength of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise, for decreasing Michael’s touching off-task behavior, although the percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an *Ineffective* rating.

**Touching off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Michael’s mean level of touching off-task behavior was 1.8% (range = 0%–7%) with an accelerating trend. Based on the trend line, the off-task behavior would be expected to continue in a nontherapeutic direction without intervention. In the last session of baseline, Michael’s off-task behavior was 3% for touching. When the 5-minute intervention prompt for teacher administered behavior-specific praise was introduced, Michael first experienced a 3 percentage point decrease in off-task behavior in the first session (i.e., 0%). This shift in the performance
level was favorable and appeared to indicate the effectiveness of the 5-minute intervention prompt; however, there was a dramatic increase in Michael’s off-task behavior in the next two sessions of intervention. Although there was a decelerating trend during intervention, Michael’s mean-level of off-task behavior was 6.1% (range 0%–20%). This change accounted for an increase of 4.3 percentage points from the baseline mean. Therefore, the 5-minute intervention prompt for teacher administered behavior-specific praise was not found to be effective for decreasing Michael’s touching off-task behavior. The percentage of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating.

Overall, results showed that both the 1-minute and 3-minute intervention prompt for delivery of teacher administered behavior-specific praise were the most effective for reducing Michael’s touching off-task behavior. A mean level of 0% off-task behavior was ultimately achieved with the 3-minute intervention prompt. In addition, there were 20 sessions across intervention with zero incidents of touching off-task behavior. The 1-minute intervention prompt resulted in a mean which was 0.8 points higher than that achieved with the 3-minute intervention prompt. In addition, there were 15 sessions across intervention with zero occurrences of touching off-task behavior. This was a difference of only five sessions from the treatment effects achieved with the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise. Finally, the 5-minute intervention prompt for the delivery of teacher administered behavior specific praise was found to be ineffective for decreasing Michael’s touching off-task behavior.
Figure 25. Percentage of touching off-task behavior observed for Michael across alternating treatments.
Figure 26. Percentage of touching off-task behavior observed for Michael across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 27. Percentage of touching off-task behavior observed for Michael across baseline and intervention conditions with means and trend lines.
Non-engagement off-task behavior. The findings for Michael’s non-engagement off-task behavior are illustrated in Figures 28–30. All three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise proved effective for decreasing Michael’s non-engagement off-task behavior. Mean levels consistently demonstrated the strength of the intervention prompts for decreasing Michael’s off-task behavior. The following analysis examines each of the three intervention prompts for delivery of teacher administered behavior-specific praise and their impact on Michael’s non-engagement off-task behavior.

Non-engagement off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise. During baseline, Michael’s mean level of off-task behavior was 33.2% (range = 7%–57%), with a decelerating trend. Based on the trend line, Michael’s non-engagement off-task behavior was expected to continue in a therapeutic direction without intervention. In the last session of baseline, Michael’s off-task behavior was 23%. When the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced Michael’s off-task behavior immediately decreased to 10% in the first session. This change accounted for an immediate shift of 13 percentage points in Michael’s performance level of behavior, thus demonstrating the presence of a functional relationship between the 1-minute intervention prompt and the off-task behavior. In addition, the mean level for Michael’s off-task behavior in the first intervention phase was 7.7% (range = 0%–27%). This change was a decrease of 25.5 percentage points from the mean displayed in baseline. As a result, an immediate change in Michael’s performance level of behavior
was evident in the first intervention phase, although the percentage of nonoverlapping data between baseline and intervention was 44%, with an *Ineffective* rating.

In the second intervention phase, Michael’s mean-level was 5.8% (range = 0%–15%). This was just 1.9 percentage points lower than that in the previous intervention phase, and a decrease of 27.4 percentage points from the mean displayed in baseline. There was an increasing trend in the second intervention phase and the percentage of nonoverlapping data between baseline and the second intervention phase was 50%, with a *Questionable* rating, at the lowest end of the range. Based on the mean levels, the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise proved very successful for decreasing Michael’s non-engagement off-task behavior.

*Non-engagement off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Michael’s mean level of non-engagement off-task behavior was 33.2% (range = 7%–57%). Based on the decelerating trend, Michael’s off-task behavior would continue to decrease in a therapeutic direction without intervention. In the last session of baseline, Michael’s off-task behavior was 23%. When the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Michael’s off-task behavior remained at the same level of 23% in the first session. In the second session, however, Michael’s off-task behavior decreased in a therapeutic direction. The first intervention phase had a decelerating trend and a mean level of 10.3% (range = 0%–32%). Such a decrease of 22.9 percentage points between baseline and intervention demonstrated the effectiveness of the 3-minute intervention prompt for reducing Michael’s non-engagement
off-task behaviors, although the percentage of nonoverlapping data between baseline and intervention was 39%, with an *Ineffective* rating.

In the second intervention phase the mean decreased again to 4.5% (range = 2%–8%), and the trend was decelerating. This was a decrease of 5.8 percentage points from the mean in the first intervention, and 28.7 percentage points from the mean in baseline. Such a continuous decrease in Michael’s off-task behavior further supported the strength of the 3-minute intervention prompt, although the percentage of nonoverlapping data between baseline and the second intervention phase was 67%, with a *Questionable* rating. Finally, in the third intervention phase, Michael’s mean level for non-engagement off-task behavior was 1.3% (range = 0%–5%). In addition, four of the six sessions in the third intervention phase had zero incidents of off-task behavior. This further showed the effectiveness of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise for decreasing Michael’s non-engagement off-task behavior. There were no overlapping data between baseline and the third intervention phase, thus resulting in a score of 100%, with a *Very Effective* rating.

*Non-engagement off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Michael’s mean level of non-engagement off-task behavior was 33.2% (range = 7%–57%). Based on the decelerating trend, Michael’s off-task behavior was expected to continue in a therapeutic direction without intervention. In the last session of baseline, Michael’s off-task behavior was 23%. When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Michael’s off-task behavior
immediately increased to 52% in the first session. Such a dramatic shift in level in a nontherapeutic direction did not offer immediate support for the 5-minute intervention prompt being effective. The second session, however, showed a therapeutic change in Michael’s performance level of behavior. Michael’s mean level during intervention was 13.9% (range = 0%–52%). This was a 19.3 percentage point decrease from the mean in baseline. In addition, there was a continuation of the decelerating trend during intervention. Although the percentage of nonoverlapping data points between baseline and intervention was 22%, with an *Ineffective* rating, overall, the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise proved successful for lowering Michael’s percentage of non-engagement disruptive behavior when the mean and trend were examined.

All three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) for delivery of teacher administered behavior-specific praise proved effective for decreasing Michael’s non-engagement off-task behavior. The 3-minute intervention prompt proved the most successful of the three interventions for lowering Michael’s non-engagement off-task behavior. The 1-minute intervention prompt was the second most effective, and finally the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was the least effective of the three interventions for decreasing Michael’s non-engagement off-task behavior.
Figure 28. Percentage of non-engagement off-task behavior observed for Michael across alternating treatments.
Figure 29. Percentage of non-engagement off-task behavior observed for Michael across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 30. Percentage of non-engagement off-task behavior observed for Michael across baseline and intervention conditions with means and trend lines.
**Discussion and Analysis for Christopher**

The findings for this subject are illustrated in Figures 31–45. Baseline data were variable and showed a very low level of occurrence for the on-task target behavior until each of the three intervention prompts for teacher administered behavior-specific praise (i.e., 1-minute, 3-minute, and 5-minute intervals) were applied. As a result of intervention, Christopher experienced an immediate change in his percentage of on-task behavior. In addition, the occurrence of four off-task behaviors (i.e., verbal, out-of-seat, touching, and non-engagement) were also analyzed in relation to each of the three intervention prompts for delivery of teacher administered behavior-specific praise which were applied. Such analysis included examination of changes in mean, levels, trend, and the immediacy of behavior change in relation to both the on-task target behavior and the occurrence of off-task behaviors.

**On-Task Behavior**

The findings for the on-task target behavior are illustrated in Figures 31–33. The results show that all three intervention prompts for teacher administered behavior-specific praise (i.e., 1-minute, 3-minute, and 5-minute intervals) were effective for increasing Christopher’s on-task behavior. In addition, changes in mean level consistently demonstrated the strength of the intervention prompt for teacher administered behavior-specific praise for increasing Christopher’s on-task behavior.

**One minute intervention prompt for delivery of teacher administered behavior-specific praise.** The 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was shown to be effective for increasing
Christopher’s on-task behavior. During baseline, Christopher’s mean level of on-task behavior was 35% (range = 0%–70%), with an accelerating trend. Based on the trend line, the on-task target behavior would continue to occur in a therapeutic direction without intervention. In the last session of baseline, Christopher’s on-task behavior was 43%.

When the 1-minute intervention prompt for teacher administered behavior-specific praise was introduced, Christopher’s on-task behavior immediately increased to 93% in the first session. This change accounted for an immediate increase of 50 percentage points in on-task behavior. Such a shift in level from the end of baseline to the beginning of intervention provided support for the effectiveness of the 1-minute intervention prompt for teacher administered behavior-specific praise in increasing Christopher’s on-task behavior.

The mean level increased to 78.6% (range = 45%–98%) during the first intervention phase from that of 35% in baseline. This change accounted for an increase in on-task behavior of 43.6 percentage points, thus further demonstrating the strength of the 1-minute intervention prompt for teacher administered behavior-specific praise for increasing Christopher’s on-task behavior. Although there was a very slight decelerating trend in the first intervention phase and the percentage of nonoverlapping data between baseline and intervention was 67%, with a Questionable rating, the immediate change in Christopher’s performance level of on-task behavior provided strong support for the strength of the 1-minute intervention prompt.

During the second intervention phase, Christopher’s mean level of on-task behavior decreased to 62.5% (range = 18%–97%). This change accounted for a decrease
of 16.1 percentage points from the first to the second intervention phase; however, the mean in the second intervention phase was still 27.5 percentage points higher than that displayed in baseline. Although the percentage of nonoverlapping data between baseline and the second intervention phase was 50%, with a Questionable rating on the lower end of the range, overall, the 1-minute intervention prompt for teacher administered behavior-specific praise proved effective for increasing Christopher’s on-task behavior.

**Three minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of on-task behavior was 35% (range = 0%–70%), with an accelerating trend line. Based on the trend, Christopher’s on-task behavior would continue to occur in a therapeutic direction without intervention. In the last session of baseline, Christopher’s on-task behavior was 43%. When the 3-minute intervention prompt for teacher administered behavior-specific praise was introduced, Christopher’s on-task behavior immediately increased to 70% in the first session. This change accounted for an immediate increase of 35 percentage points. Such an immediate shift in Christopher’s performance level of on-task behavior offered evidence for the effectiveness of the 3-minute intervention prompt for teacher administered behavior-specific praise for increasing Christopher’s on-task behavior.

Although there was a reversal of trend in a nontherapeutic direction in the first intervention phase, Christopher’s mean level of on-task behavior was 67.4% (range = 17%–100%). This change accounted for an increase of 32.4 percentage points from the mean displayed in baseline, thus demonstrating the strength of the 3-minute intervention prompt for teacher administered behavior-specific praise for increasing Christopher’s
on-task behavior. Although there was variability in the first intervention phase and the percentage of nonoverlapping data between baseline and intervention was 44%, with an *Ineffective* rating, mean levels remained consistent across all three intervention phases. The mean level in the second intervention phase was 67.7% (range = 27%–100%), with a reversal of trend again. This change accounted for a slight increase of 0.3 percentage point in on-task behavior, however the percentage of nonoverlapping data between baseline and the second intervention phase was 50%, with a *Questionable* rating at the lowest end of the range.

In the third intervention phase there was a reversal of trend for the third time and a slight change again in mean level, to 66.7% (range = 35%–87%). Although a 1.0 percentage point decrease from the mean in the second intervention phase, this change accounted for a 31.7 percentage point increase in on-task behavior from that displayed in baseline. Such an increase in on-task behavior further demonstrated the effectiveness of the 3-minute intervention prompt for teacher administered behavior-specific praise for increasing Christopher’s on-task behavior, although the percentage of nonoverlapping data between baseline and the third intervention phase was 67%, with a *Questionable* rating.

**Five minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of on-task behavior was 35% (0%–70%). Based on the accelerating trend, Christopher’s on-task target behavior would continue to occur in a therapeutic direction without intervention. In the last session of baseline, Christopher’s on-task behavior was 43%. When the 5-minute intervention prompt for teacher administered behavior-specific praise was introduced,
Christopher’s on-task behavior immediately increased to 63% in the first session. This change accounted for a 20 percentage point increase. Such a change in level offered support for the strength of the 5-minute intervention prompt for teacher administered behavior-specific praise in increasing Christopher’s on-task behavior. In addition, the mean level during intervention was 56.4% (range = 0%–95%). This change was a favorable increase in on-task behavior from the mean of 35% displayed in baseline, as this change accounted for an increase of 21.4 percentage points. Although there was variability in the data, and the percentage of nonoverlapping data between baseline and intervention was 39%, with an Ineffective rating, the 5-minute intervention prompt for teacher administered behavior-specific praise was shown to be effective for increasing Christopher’s on-task behavior when considering the increase in mean levels from baseline to intervention.

Overall results showed that all three intervention prompts for teacher administered behavior-specific praise were successful in improving Christopher’s on-task behavior. Upon comparing the means, the 1-minute and 3-minute intervention prompts for teacher administered behavior-specific praise were found to be the most successful for increasing Christopher’s on-task behavior. The 5-minute intervention prompt for teacher administered behavior-specific praise showed the least favorable results for increasing Christopher’s on-task behavior.
Figure 31. Percentage of on-task behavior observed for Christopher across alternating treatments.
Figure 32. Percentage of on-task behavior observed for Christopher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 33. Percentage of on-task behavior observed for Christopher across baseline and intervention conditions with means and trend lines.
All three intervention prompts for teacher administered behavior-specific praise proved to be effective for increasing Christopher’s on-task behavior when compared to baseline. Although all three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute interval) were successful in increasing Christopher’s on-task behavior from that displayed in baseline, results showed the greatest increase occurred when the 1-minute intervention prompt for teacher administered behavior-specific praise was in effect, followed by the 3-minute intervention prompt, and finally, the 5-minute intervention prompt. The following analysis examines the effect of the intervention prompts for teacher administered behavior-specific praise on each of Christopher’s four off-task behaviors (i.e., verbal, out-of-seat, touching, and non-engagement).

**Off-Task Behavior**

Christopher’s off-task behaviors were separated into four categories for the purpose of data collection: verbal, out-of-seat, touching, and non-engagement off-task behavior. Each off-task behavior was examined to determine whether the intervention prompt (i.e., 1-minute, 3-minute, and 5-minute interval) for teacher administered behavior-specific praise was effective for decreasing off-task behaviors. The following analysis addresses the four subcategories of Christopher’s off-task behavior.

**Verbal off-task behavior.** The findings for Christopher’s verbal off-task behavior are illustrated in Figures 34–36. Overall, the findings showed that the intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) for teacher administered behavior-specific praise were effective for decreasing Christopher’s verbal off-task behavior. The following analysis examines each of the three intervention prompts (i.e.,
1-minute, 3-minute, and 5-minute intervals) for teacher administered behavior-specific praise and their impact on Christopher’s verbal off-task behavior.

**Verbal off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of verbal off-task behavior was 36.9% (range = 15%–60%), with a decelerating trend. Based on the trend, verbal off-task behavior would continue to occur in a therapeutic direction without intervention. In the last session of baseline, Christopher’s verbal off-task behavior was 52%. When the 1-minute intervention prompt for teacher administered behavior-specific praise was introduced, Christopher’s verbal off-task behavior immediately decreased to 7%. Such a decrease and shift in Christopher’s performance level of behavior offered support for the 1-minute intervention prompt, as this was a 45 percentage point decrease.

Due to variability, there was a near neutral trend in the first intervention phase. Christopher’s mean level for verbal off-task behavior in the first intervention phase was 19.3% (range = 0%–55%). This was a definite improvement from the baseline mean of 36.9%, thus accounting for a decrease of 17.6 percentage points. Such a decrease in the performance level of Christopher’s verbal off-task behavior during intervention demonstrated the strength of the 1-minute intervention prompt, although the percentage of nonoverlapping data between baseline and intervention was 44%, with an *Ineffective* rating.

In the second intervention phase, the 1-minute intervention prompt for teacher administered behavior-specific praise continued to be effective for decreasing
Christopher’s off-task verbal behavior. The trend was decelerating and the mean level for the second intervention phase was 15.7% (range = 3%–42%). This change provided additional evidence of a decreasing mean across intervention phases, thus further offering support for the 1-minute intervention prompt for teacher administered behavior-specific praise in decreasing Christopher’s verbal off-task behavior, however the percentage of nonoverlapping data between baseline and the second intervention phase was 50%, with a Questionable rating at the lowest end of the range.

**Verbal off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of verbal off-task behavior was 36.9% (range = 15%–60%), with a decelerating trend in a therapeutic direction. Based on the trend, verbal off-task behavior would continue to occur in a therapeutic direction without intervention. In the last session of baseline, Christopher’s verbal off-task behavior was 52%. When the 3-minute intervention prompt for teacher administered behavior-specific praise was introduced, Christopher’s verbal off-task behavior initially decreased to 30% in the first session. This change accounted for a decrease in off-task behavior of 22 percentage points; however there was a reversal of the therapeutic trend during the first intervention phase. Christopher’s mean level of verbal off-task behavior for the first intervention phase was 22.8% (range = 0%–53%), which was a decrease of 14.1 percentage points from the mean displayed in baseline. The percentage of nonoverlapping data between baseline and intervention was 17%, with an Ineffective rating.
In the second intervention phase the mean level decreased to 18.7% (range = 0%–43%). This decrease showed the effectiveness of the 3-minute intervention prompt, however because of continued variability, the percentage of nonoverlapping data between baseline and the second intervention phase was 50%, with a Questionable rating, at the lowest end of the range. In the third intervention phase the mean was 26.3% (range = 10%–52%). Although this change was an increase from the mean level displayed in the previous treatment condition, it was still a 10.6 percentage point improvement from the mean level displayed in baseline. A nontherapeutic reversal in trend occurred again in the third intervention phase, however the mean was consistently less across all intervention phases when compared with the mean in baseline, thus showing the effectiveness of the 3-minute intervention prompt for teacher administered behavior-specific praise when comparing mean levels. Although the percentage of nonoverlapping data between baseline and the third intervention phase was 33%, with an Ineffective rating, overall, the 3-minute intervention prompt was shown to be effective in decreasing Christopher’s verbal off-task behavior, but to a much lesser extent than the 1-minute intervention prompt.

**Verbal off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of verbal off-task behavior was 36.9% (range = 15%–60%), with a decelerating trend in a therapeutic direction. Based on the trend, Christopher’s verbal off-task behavior would continue in a therapeutic direction without intervention. In the last session of baseline, Christopher’s verbal off-task behavior was 52%. When the 5-minute intervention prompt
for teacher administered behavior-specific praise was introduced, Christopher’s verbal off-task behavior immediately decreased to 15% in the first session. This change accounted for a 37 percentage point decrease in verbal off-task behavior. Such an immediate shift in Christopher’s performance level of verbal off-task behavior showed the positive influence of the 5-minute intervention prompt on Christopher’s off-task behavior. In addition, the mean level during intervention was 28.1% (range = 2%–53%). Although there was great variability during intervention, and the percentage of nonoverlapping data between baseline and intervention was 11% with an *Ineffective* rating, results supported the effectiveness of the 5-minute intervention prompt for teacher administered behavior-specific praise, for decreasing Christopher’s verbal off-task behavior.

All three intervention prompts for teacher administered behavior-specific praise were shown to be effective in decreasing Christopher’s verbal off-task behavior when compared to baseline; however, the 1-minute intervention prompt for teacher administered behavior-specific praise was found to be the most successful, with the 3-minute intervention prompt showing the second most favorable results, and finally the 5-minute intervention prompt was the least effective of the intervention prompts for delivering teacher administered behavior-specific praise to decrease Christopher’s verbal off-task behavior.
Figure 34. Percentage of verbal off-task behavior observed for Christopher across alternating treatments.
Figure 35. Percentage of verbal off-task behavior observed for Christopher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 36. Percentage of verbal off-task behavior observed for Christopher across baseline and intervention conditions with means and trend lines.
Out-of-seat off-task behavior. The findings for Christopher’s out-of-seat off-task behavior are illustrated in Figures 37–39. Overall, findings provided compelling evidence in favor of the intervention prompts for teacher administered behavior-specific praise for decreasing Christopher’s out-of-seat off-task behavior. The following analysis examines each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) for teacher administered behavior-specific praise and their impact on Christopher’s out-of-seat off-task behavior.

Out-of-seat off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise. During baseline, Christopher’s mean level of out-of-seat off-task behavior was 20.6% (range = 0%–68%), with an accelerating trend. Based on the trend, Christopher’s out-of-seat off-task behavior was expected to continue in a nontherapeutic direction without intervention. In the last session of baseline, Christopher’s out-of-seat off-task behavior was 3%. Once the 1-minute intervention prompt was implemented, Christopher’s out-of-seat off-task behavior decreased to 0% in the first session. This shift in performance level accounted for a 3 percentage point decrease in off-task behavior. In addition, Christopher’s mean level for out-of-seat off-task behavior in the first intervention phase was 0.3% (range = 0%–2%). This change was a decrease of 20.3 percentage points from the mean level displayed in baseline. Such a decrease in the mean from baseline to intervention supported the effectiveness of the 1-minute intervention prompt for teacher administered behavior-specific praise, although the percentage of nonoverlapping data between baseline and intervention was 0%, with an Ineffective rating.
During the second intervention phase, Christopher’s mean level increased to 7.2% (range = 0%–30%) from 0.3% in the first intervention phase. Although this change accounted for a 6.9% percentage point increase from the first intervention phase, it was still a 13.4 percentage point decrease from the baseline mean of 20.6%. In addition, between the first and second interventions, there was a total of 19 sessions with zero incidents of out-of-seat off-task behavior, although the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating. Overall however, the 1-minute intervention prompt for teacher administered behavior-specific praise was very effective and produced an immediate change in Christopher’s out-of-seat off-task behavior.

**Out-of-seat off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of out-of-seat off-task behavior was 20.6 (range = 0%–68%). Based on the accelerating trend, Michael’s out-of-seat off-task behavior would continue to increase in a nontherapeutic direction without future intervention. In the last session of baseline, Christopher’s out-of-seat off-task behavior was 3%; however in the first session of intervention, out-of-seat off-task behavior was 0%. This change accounted for a 3 percentage point shift in level. In addition, the mean for the first intervention phase was 5.2% (range = 0%–30%). This change accounted for a decrease of 15.4 percentage points from the mean in baseline, although a slightly accelerating trend remained in the first intervention phase, and the percentage of nonoverlapping data between baseline and intervention was 0%, with an Ineffective rating.
In the second intervention phase, the mean was 0.8% (range = 0%–3%), and in the third intervention phase the mean was 4.7% (range = 0%–18%). Although this was an increase of 3.9 percentage points from the mean in the second intervention, it was a decrease of 15.9 percentage points from the mean displayed in baseline. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating, and although the percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an Ineffective rating, and there was an accelerating trend in the last intervention phase; there were a total of 17 sessions throughout the intervention phases with zero incidents of out-of-seat off-task behavior. Overall, results indicate that the 3-minute intervention prompt for teacher administered behavior-specific praise was effective for decreasing Christopher’s out-of-seat off-task behavior.

**Out-of-seat off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of out-of-seat off-task behavior was 20.6% (range = 0%–68%). In addition, there was an accelerating trend, suggesting that Christopher’s out-of-seat off-task behavior would continue in a nontherapeutic direction without intervention. In the last session of baseline, Christopher’s out-of-seat off-task behavior was 3%. When the 5-minute intervention prompt was introduced, the first data session was 0%, accounting for a very small 3 percentage point decrease in Christopher’s out-of-seat off-task behavior. During intervention, Christopher’s mean level of out-of-seat off-task behavior was 4.4% (range = 0%–42%). This change accounted for a 16.2 percentage point decrease in the mean level
from baseline to intervention. The trend was accelerating and the percentage of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating, however there was a decrease in Christopher’s out-of-seat off-task behavior when comparing the mean between baseline and intervention, thus demonstrating the effectiveness of the 5-minute intervention prompt for teacher administered behavior-specific praise for decreasing Christopher’s out-of-seat off-task behavior.

Overall, all three intervention prompts for teacher administered behavior-specific praise were found to be successful in decreasing Christopher’s out-of-seat off-task behavior. Although the percentage of nonoverlapping data was rated *Ineffective*, there were many sessions with zero occurrences of out-of-seat behavior across the intervention phases.

*Figure 37.* Percentage of out-of-seat off-task behavior observed for Christopher across alternating treatments.
Figure 38. Percentage of out-of-seat off-task behavior observed for Christopher across baseline and intervention conditions with nonoverlapping data (PND).
Figure 39. Percentage of out-of-seat off-task behavior observed for Christopher across baseline and intervention conditions with means and trend lines.
**Touching off-task behavior.** The findings for Christopher’s touching off-task behavior are illustrated in Figures 40–42. Overall, the 1-minute and 3-minute intervention prompts for teacher administered behavior-specific praise were shown to be effective for decreasing Christopher’s touching off-task behavior; however the 5-minute intervention prompt was not found to be successful in decreasing Christopher’s off-task behavior when compared to baseline. The following analysis examines each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) for teacher administered behavior-specific praise and their effect on Christopher’s touching off-task behavior.

*Touching off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Christopher’s mean level of touching off-task behavior was 5.1% (range = 0%–25%). Based on the accelerating trend, Christopher’s off-task behavior for touching was expected to continue in a nontherapeutic direction without direct intervention.

In the last session of baseline, Christopher’s off-task behavior for touching was 0%. When the 1-minute intervention prompt for teacher administered behavior-specific praise was introduced, there was no change in the performance level of Christopher’s touching off-task behavior. The mean level was 1.8% (range = 0%–10%). This change accounted for a decrease of 3.3 percentage points from the mean in baseline. The percentage of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating.

In the second intervention phase, the mean level lowered just slightly to 1.0% (range = 0%–2%). This change accounted for a decrease of 0.8 percentage points from the
first intervention phase and 4.1 percentage points from the mean level displayed in baseline. Although the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an *Ineffective* rating, there was a decelerating trend in a therapeutic direction during the second intervention phase. The 1-minute intervention prompt for teacher administered behavior-specific praise proved a successful intervention for decreasing Christopher’s touching off-task behavior.

*Touching off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Christopher’s mean level of touching off-task behavior was 5.1% (range = 0%–25%). In addition, there was a nontherapeutic trend. Based on the trend, Christopher’s off-task behavior was expected to continue in a nontherapeutic direction without intervention. In the last session of baseline, Christopher’s touching off-task behavior was 0%. When the 3-minute intervention prompt for teacher administered behavior-specific praise was introduced, there was no change in Christopher’s off-task behavior. Although there was no immediate shift in the performance level from the last session of baseline to the first session of intervention, the overall mean level was favorable from that displayed in baseline, as the mean was 2.9% (range = 0%–12%). This was a 2.2 percentage point decrease from the mean level in baseline. Such a favorable decrease in mean level demonstrated the strength of the 3-minute intervention prompt. The first intervention phase showed variability in the data and an accelerating trend line. The percentage of nonoverlapping data between baseline and the first intervention phase was 0%, with an *Ineffective* rating.
The mean level in the second intervention phase was 0.3% (range = 0%–2%). In addition, there was very little variability as five of the six sessions had zero incidents of touching off-task behavior. The trend was nearly neutral in the second intervention phase and it was decelerating in the third intervention phase. Although the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating, this change in mean was a decrease of 2.6 percentage points from the first intervention phase, and 4.8 percentage points from baseline.

In the third intervention phase, the mean was 2.0% (range = 0%–10%), with four of six sessions having zero incidents of touching off-task behavior. The percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an Ineffective rating; however, overall, the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise proved very successful for decreasing Christopher’s touching off-task behavior.

**Touching off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of touching off-task behavior was 5.1% (range = 0%–25%). Based on the accelerating trend in baseline, Christopher’s behavior would be expected to occur in a nontherapeutic direction without direct intervention. In the last session of baseline, Christopher’s off-task behavior was 0% for touching. When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Christopher’s off-task behavior did not change, but instead remained at 0%. During the phase when the 5-minute intervention prompt was implemented, there was variability in the data and the mean level
increased to 6.1% (range = 0%–27%). In addition, the percentage of nonoverlapping data between baseline and intervention was 0%, with an Ineffective rating. Although there was a therapeutic trend during intervention, the 5-minute intervention prompt was the only one in which the mean level was slightly greater than that displayed in baseline. The change in mean level accounted for an increase of 1.0 percentage point from that of baseline. Consequently, there was no decrease in Christopher’s touching off-task behavior when the 5-minute intervention prompt was in effect.

When comparing the three intervention prompts, both the 1-minute and 3-minute intervention prompts for delivery of teacher administered behavior-specific praise were shown to be the most successful for decreasing Christopher’s touching off-task behavior, as both showed a decrease in the mean level of Christopher’s off-task behavior. In contrast, however, there was an increase in Christopher’s touching off-task behavior when the 5-minute intervention prompt was in effect.
Figure 40. Percentage of touching off-task behavior observed for Christopher across alternating treatments.
Figure 41. Percentage of touching off-task behavior observed for Christopher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 42. Percentage of touching off-task behavior observed for Christopher across baseline and intervention conditions with means and trend lines.
**Non-engagement off-task behavior.** The findings for Christopher’s non-engagement off-task behavior are illustrated in Figures 43–45. The 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was found to be very successful for decreasing Christopher’s non-engagement off-task behavior. The 5-minute intervention prompt also proved somewhat successful in decreasing Christopher’s non-engagement behavior. The 1-minute intervention prompt initially provided evidence of effectiveness during the first intervention phase, as there were 13 sessions with zero occurrences of non-engagement off-task behavior; however in the second intervention phase there was a high incidence of off-task behavior in sessions 29 and 32. Consequently, the mean level for the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was actually higher during the second intervention phase than the mean level in baseline. The following analysis examines each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) for delivery of teacher administered behavior-specific praise and their impact on Christopher’s non-engagement off-task behavior.

**Non-engagement off-task behavior with 1-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of off-task behavior was 10.1% (range = 0%–40%). Based on the decelerating trend, Christopher’s non-engagement off-task behavior was expected to continue in a nontherapeutic direction without intervention. In the last session of baseline, Christopher’s off-task behavior was 5%. When the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Christopher’s
off-task behavior immediately decreased to 0% in the first session. This change accounted for an immediate shift of 5 percentage points in level, thus demonstrating a small but favorable change in the performance level of the off-task behavior. In addition, there was a neutral trend during the first intervention phase. Christopher’s mean level was 0.8% (range = 0%–5%). This was a 9.3 percentage point decrease from the mean displayed in baseline. Out of 18 sessions, 13 sessions had zero incidents of non-engagement off-task behavior. This decrease in the mean level demonstrated the strength and effectiveness of the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise. In addition, there was little to no variability during the first intervention phase, providing increased evidence of the functional relationship between off-task behavior and the 1-minute intervention prompt, although the percentage of nonoverlapping data between baseline and intervention was 0%, with an Ineffective rating.

In the second intervention phase, there was a dramatic increase in the mean level to 16.3% (range = 0%–60%). This accounted for an increase of 15.5 percentage points from the first intervention phase, and 6.2 percentage points increase from that in baseline. Results in the second intervention phase did not support the strength of the 1-minute intervention prompt because of the increase in non-engagement off-task behavior during Sessions 29 and 32. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating.

*Non-engagement off-task behavior with 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.* During baseline, Christopher’s mean level of non-engagement off-task behavior was 10.1% (range = 0%–40%). Based
on the therapeutic trend during baseline, Christopher’s off-task behavior was expected to continue to decrease without intervention. In the last session of baseline, Christopher’s off-task behavior was 5%. When the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Christopher’s off-task behavior immediately decreased to 0% in the first session. This change accounted for a decrease of 5 percentage points from baseline to intervention.

The mean level during the first intervention phase was 3.2% (range = 0%–20%). This change accounted for a decrease of 6.9 percentage points from the mean level in baseline, thereby providing evidence for the effectiveness of the 3-minute intervention prompt in decreasing Christopher’s not engagement behavior. Although the percentage of nonoverlapping data between baseline and intervention was 0%, with an Ineffective rating, there was a continuation of the decelerating trend in the first intervention phase. Furthermore, 10 out of 18 sessions had zero incidents of non-engagement off-task behavior, thus further demonstrating the effectiveness of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise.

In the second intervention phase, although there was a decelerating trend, there was also variability and an unexpected increase in the mean level to 14.2% (range = 0%–30%). This change was an increase of 4.1 percentage points from baseline and an increase of 11.0 percentage points from the mean level in the first intervention phase. In addition, the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating. Although there were three sessions
with zero incidents of non-engagement off-task behavior, there were also three sessions with high incidents of non-engagement off-task behavior.

In the third intervention phase, the mean was 0.8% (range = 0%–3%). Four of the six sessions had zero incidents of non-engagement off-task behavior, with little to no variability. Such a response to treatment further showed the effectiveness of the 3-minute intervention prompt for delivery of teacher administered behavior-specific praise for decreasing Christopher’s non-engagement off-task behavior, although the percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an Ineffective rating.

**Non-engagement off-task behavior with 5-minute intervention prompt for delivery of teacher administered behavior-specific praise.** During baseline, Christopher’s mean level of non-engagement off-task behavior was 10.1% (range = 0%–40%). Based on the decelerating trend, Christopher’s off-task behavior was expected to decrease without intervention. In the last session of baseline, Christopher’s off-task behavior was 5%.

When the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise was introduced, Christopher’s off-task behavior immediately increased to 22% in the first session of intervention. This immediate and nontherapeutic shift in level did not offer initial evidence in favor of the 5-minute intervention prompt for delivery of teacher administered behavior-specific praise. The mean level during intervention was 8.2% (range = 0%–77%) and there was a reversal of the trend line in a nontherapeutic direction due to an extreme increase in behavior, in Session 26. Although
the percentage of nonoverlapping data between baseline and intervention was 0%, with an
_Ineffective_ rating, this change was a decrease of 1.9 percentage points from the mean in
baseline. The decrease in mean level from baseline to intervention did offer some support
in favor of the 5-minute intervention prompt for decreasing Christopher’s non-engagement
off-task behavior. Overall, the three intervention prompts (i.e., 1-minute, 3-minute, and
5-minute intervals) for delivery of teacher administered behavior-specific praise had very
different effects on Christopher’s non-engagement off-task behavior. The 3-minute
intervention prompt was shown to be successful in eliminating nearly all off-task
behavior. The 1-minute intervention prompt appeared to be ineffective based on the mean
level in the last intervention phase; however there was evidence of the treatment’s
effectiveness during the first intervention phase when the mean level decreased to zero.
Finally, the 5-minute intervention prompt showed a slight decrease in non-engagement
off-task behavior.
Figure 43. Percentage of non-engagement off-task behavior observed for Christopher across alternating treatments.
Figure 44. Percentage of non-engagement off-task behavior observed for Christopher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 45. Percentage of non-engagement off-task behavior observed for Christopher across baseline and intervention conditions with means and trend lines.
Overall Analysis of the Secondary Participants

The findings for the three teachers who served as secondary participants (i.e., Samantha’s teacher, Michael’s teacher, and Christopher’s teacher) and were responsible for administering behavior-specific praise are illustrated in Figures 46–63. Data were collected on three secondary teacher participants for the purpose of examining results regarding teacher administered behavior-specific praise statements and teacher administered reprimands when compared to the 4:1 ratio (in favor of praise) which is supported in the research of praise to reprimands. Data collection allowed for an examination of baseline and intervention conditions regarding the percentage of teacher reprimands and the percentage of behavior-specific praise statements which were administered. The following analysis examines each of the three teacher participants and the effect of the intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) on teachers’ use of behavior-specific praise statements and reprimands.

Analysis for Samantha’s Teacher

The findings for Samantha’s teacher are illustrated in Figures 46–52. Results pertaining to the teacher’s use of behavior-specific praise statements are first addressed. Next, the teacher’s use of reprimands are addressed. The following analysis examines the effect of each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) on Samantha’s teacher’s use of behavior-specific praise statements and reprimands.

Teacher administered behavior-specific praise statements. The findings for the use of behavior-specific praise statements by Samantha’s teacher are illustrated in Figures
Results indicate that Samantha’s teacher administered the greatest number of behavior-specific praise statements when the 1-minute intervention prompt was in effect. This was followed by the 3-minute intervention prompt which yielded the second greatest percentage of teacher administered behavior-specific praise statements, and the 5-minute intervention prompt resulted in the least amount of teacher administered behavior-specific praise statements. Overall, however, all three intervention prompts resulted in an increase in the use of teacher administered behavior-specific praise statements when mean levels from baseline were compared to the mean levels intervention.

**Percentage of teacher administered behavior-specific praise statements with the 1-minute intervention prompt.** During baseline, the mean level for teacher administered behavior-specific praise statements was 1.5% (range = 0%–8%), with little variability and a neutral trend. In the last session of baseline, Samantha’s teacher was administering behavior-specific praise statements at a level of 2%. When the 1-minute intervention prompt was introduced, there was an immediate increase to 20% in the first session. Such an immediate shift in level supported the effectiveness of the intervention prompt for influencing the behavior of Samantha’s teacher. In addition, the mean level for the first intervention phase was 22.2% (range = 17%–30%), with a very slight accelerating trend in a therapeutic direction. This change in mean level accounted for an increase of 20.7 percentage points from the mean in baseline. Such a favorable increase in mean level, with minimal variability, further demonstrated the strength of the 1-minute intervention prompt. There were no overlapping data between baseline and intervention, thus resulting
in a score of 100% for the percentage of nonoverlapping data, with a Very Effective rating.

The mean level in the second intervention phase was 21.2% (range = 17%–35%). Although this change was a decrease of 1.0 percentage point from the first intervention phase and there was a decelerating trend, this change still accounted for an increase of 19.7 percentage points from the mean displayed in baseline. According to the mean levels, there was a favorable increase in the teacher’s use of behavior-specific praise statements when the 1-minute intervention prompt was in effect. There were no overlapping data between baseline and the second intervention phase, thus resulting in a score of 100% for the percentage of nonoverlapping data, with a Very Effective rating.

**Percentage of teacher administered behavior-specific praise statements with the 3-minute intervention prompt.** During baseline, the mean level for teacher administered behavior-specific praise statements was 1.5% (range = 0%–8%), with little variability and a neutral trend. In the last session of baseline, Samantha’s teacher was administering behavior-specific praise statements at a level of 2%. When the 3-minute intervention prompt was introduced, there was an immediate increase to 18% in the first session. Such an immediate shift in level once again supported the effectiveness of the intervention prompt for influencing the behavior of Samantha’s teacher. The mean level for the first intervention phase was 12.6% (range = 5%–23%). Although there was a slightly decelerating trend in a nontherapeutic direction, this change in mean level did account for an increase of 11.1 percentage points from the mean in baseline. Such a favorable increase in mean level demonstrated the strength of the 3-minute intervention prompt. In
addition, the percentage of nonoverlapping data between baseline and intervention resulted in a score of 72%, with an Effective rating.

In the second intervention phase, the mean level was 10.7% (range = 5%–18%). Although this was a decrease of 1.9 percentage points from the first intervention phase, it still accounted for an increase of 9.2 percentage points from the mean displayed in baseline. The percentage of nonoverlapping data between baseline and the second intervention phase resulted in a score of 50%, with a Questionable rating, at the lowest end of the range. The mean in the third intervention phase was 14.7% (range = 7%–20%). Although there was a decelerating trend in a nontherapeutic direction, the change in the teacher’s performance level accounted for a 4.0 percentage point increase from the second intervention phase and a 13.2 percentage point increase from the mean level in baseline. According to the mean levels, although not as dramatic as the results yielded when the 1-minute intervention prompt was in effect, there was a favorable increase in the teacher’s use of behavior-specific praise statements when the 3-minute intervention prompt was in effect. The percentage of nonoverlapping data between baseline and the third intervention phase was 83%, resulting in an Effective rating.

*Percentage of teacher administered behavior-specific praise statements with the 5-minute intervention prompt.* During baseline, the mean level for teacher administered behavior-specific praise statements was 1.5% (range = 0%–8%), with little variability and a neutral trend. In the last session of baseline, Samantha’s teacher was administering behavior-specific praise statements at a level of 2%. When the 5-minute intervention prompt was introduced, the teacher’s percentage of behavior-specific praise statements
increased to 5% in the first session. This accounted for a minimal 3 percentage point shift in level, in a favorable direction. The mean level during intervention was 9.9% (range = 3%–17%), with a slightly accelerating trend in a therapeutic direction. This change in mean level from baseline to intervention accounted for an increase of 8.4 percentage points. Such a change in mean level demonstrated the positive effect of the 5-minute intervention prompt on increasing the teacher’s performance level of administering behavior-specific praise statements, although the percentage of nonoverlapping data between baseline and intervention resulted in a score of 61%, with a Questionable rating.

![Figure 46](image)

*Figure 46.* Percentage of behavior-specific praise statements administered by Samantha’s teacher across alternating treatments.
Figure 47. Percentage of behavior-specific praise statements administered by Samantha’s teacher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 48. Percentage of behavior-specific praise statements administered by Samantha’s teacher across baseline and intervention conditions with means and trend lines.
**Teacher administered reprimands.** The findings for the use of reprimands by Samantha’s teacher are illustrated in Figures 49–52. Results indicated that Samantha’s teacher administered the least amount of reprimands when the 1-minute intervention prompt was in effect, although the preferred ratio of behavior-specific praise statements to reprimands (i.e., 4:1 in favor of praise) was never achieved.

**Percentage of teacher administered reprimands with the 1-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 31.7% (range = 13%–48%). Variability was high and there was an accelerating trend in a nontherapeutic direction. In the last session of baseline, Samantha’s teacher was administering reprimands at a level of 30%. When the 1-minute intervention prompt was introduced, there was an immediate decrease to 23% in the first session. Such an immediate shift in level supported the effectiveness of the 1-minute intervention prompt for influencing the behavior of Samantha’s teacher. The mean level for the first intervention phase was 23.3% (range = 10%–57%), with a very slight accelerating trend in a nontherapeutic direction. This change in mean level accounted for a decrease of 8.4 percentage points from the mean level in baseline. Such a favorable decrease in mean level further demonstrated the strength of the 1-minute intervention, although the percentage of nonoverlapping data between baseline and intervention resulted in a score of 6%, with an *Ineffective* rating.

The mean level in the second intervention phase was 28.8% (range = 13%–53%). Although this change was an increase of 5.5 percentage points from the first intervention phase, there was a decelerating trend in a therapeutic direction, with a decrease of 2.9
percentage points from the mean displayed in baseline. According to mean levels, there was a favorable but minimal decrease in the teacher’s use of reprimands when the 1-minute intervention prompt was in effect. The percentage of nonoverlapping data between baseline and the second intervention phase however, resulted in a score of 0%, with an *Ineffective* rating.

**Percentage of teacher administered reprimands with the 3-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 31.7% (range = 13%–48%), with an accelerating trend in a nontherapeutic direction. In the last session of baseline, Samantha’s teacher was administering reprimands at a level of 30%. When the 3-minute intervention prompt was introduced, there was an immediate increase to 38% in the first session. Such an immediate shift in level, in a nontherapeutic direction did not support the treatment’s effectiveness for influencing the teacher’s behavior so as to decrease the number of reprimands. In addition, the mean level for the first intervention phase was 30.9% (range = 12%–48%), with a slightly accelerating trend in a nontherapeutic direction. This change in mean level accounted for a decrease of 0.8 percentage points from the baseline mean. The decrease in mean level was slight, thus failing to demonstrate the strength of the 3-minute intervention prompt, and the percentage of nonoverlapping data between baseline and intervention resulted in a score of 6%, with an *Ineffective* rating.

In the second intervention phase the mean level was 46.2% (range = 27%–60%), also with an accelerating trend. Not only was this an increase of 15.3 percentage points from the first intervention phase, but it was also an increase of 14.5 percentage points
from the mean displayed in baseline. In addition, the percentage of nonoverlapping data between baseline and the second intervention phase resulted in a score of 0%, with an *Ineffective* rating. Finally, the mean in the third intervention phase was 34.8% (range = 17%–67%). While there was still an accelerating trend, this change in the teacher’s performance level of reprimands accounted for an 11.4 percentage point decrease from the second intervention phase and a 3.1 percentage point increase from the mean in baseline, however the percentage of nonoverlapping data between baseline and the third intervention phase resulted in a score of 0%, with an *Ineffective* rating. Overall, Samantha’s teacher did not show a decrease in the percentage of reprimands administered when the 3-minute intervention prompt was in effect.

*Percentage of teacher administered reprimands with the 5-minute intervention prompt.* During baseline, the mean level for teacher administered reprimands was 31.7% (range = 13%–48%), with an accelerating trend in a nontherapeutic direction. In the last session of baseline, Samantha’s teacher was administering reprimands at a level of 30%. When the 5-minute intervention prompt was introduced, the teacher’s percentage of reprimands immediately increased to 48% in the first session. This accounted for an 18 percentage point increase between baseline and intervention. This did not offer support for the effectiveness of the 5-minute intervention prompt for decreasing teacher administered reprimands. In addition, the mean level during intervention was 33.2% (range = 22%–57%). This accounted for an increase of 1.5 percentage points. The percentage of nonoverlapping data between baseline and intervention resulted in a score of 0%, with an *Ineffective* rating. Although there was a decreasing trend in a therapeutic
direction, overall the teacher’s percentage of reprimands slightly increased when the
5-minute intervention prompt was in effect.

Figure 49. Percentage of reprimands administered by Samantha’s teacher across
alternating treatments.
Figure 50. Percentage of reprimands administered by Samantha’s teacher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 51. Percentage of reprimands administered by Samantha’s teacher across baseline and intervention conditions with means and trend lines.
Figure 52. Ratio of reprimands to behavior-specific praise statements observed for Samantha’s teacher.

**Analysis for Michael’s Teacher**

The findings for Michael’s teacher are illustrated in Figures 53–59. Results pertaining to the teacher’s use of behavior-specific praise statements are first addressed. Next, the teacher’s use of reprimands are addressed. The following analysis examines the effect of each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) and their impact on Michael’s teacher’s use of behavior-specific praise statements and reprimands.

**Teacher administered behavior-specific praise statements.** The findings for the use of behavior-specific praise statements by Michael’s teacher are illustrated in Figures 53–55. Results indicate that Michael’s teacher administered the greatest number of
behavior-specific praise statements to the class when the 1-minute intervention prompt was in effect. This was followed by the 3-minute intervention prompt which yielded the second greatest percentage of teacher administered behavior-specific praise statements. Finally, the 5-minute intervention prompt resulted in the least amount of teacher administered behavior-specific praise statements. All three intervention prompts resulted in an increase in the use of teacher administered behavior-specific praise statements when mean levels were compared to baseline.

**Percentage of teacher administered behavior-specific praise statements with the 1-minute intervention prompt.** During baseline, the mean level for teacher administered behavior-specific praise statements was 5.7% (range = 0%–12%), with a slight accelerating trend in a therapeutic direction. In the last session of baseline, Michael’s teacher was administering behavior-specific praise statements at a level of 2%. When the 1-minute intervention prompt was introduced, there was an immediate increase to 22% in the first session. Such an immediate shift in level supported the treatment’s effectiveness for influencing the behavior of Michael’s teacher. In addition, the mean level for the first intervention phase was 21.9% (range = 17%–35%), with an accelerating trend in a therapeutic direction. This change in mean level accounted for an increase of 16.2 percentage points from the mean in baseline. Such a favorable increase in mean level further demonstrated the strength of the 1-minute intervention prompt. There were no overlapping data points between baseline and intervention, resulting in a score of 100%, with a Very Effective rating.
The mean level in the second intervention phase was 24.7% (range = 17%–33%). This change accounted for an increase of 2.8 percentage points from the first intervention phase and 19.0 percentage points from the mean displayed in baseline. In addition, there was an accelerating trend. Overall, there was an increase in the teacher’s use of behavior-specific praise statements when the 1-minute intervention prompt was in effect. There were no overlapping data points between baseline and the second intervention phase, resulting in a score of 100%, with a Very Effective rating.

**Percentage of teacher administered behavior-specific praise statements with the 3-minute intervention prompt.** During baseline, the mean level for teacher administered behavior-specific praise statements was 5.7% (range = 0%–12%), with an accelerating trend. In the last session of baseline, Michael’s teacher was administering behavior-specific praise statements at a level of 2%. When the 3-minute intervention prompt was introduced, there was an immediate increase to 10% in the first session. Such an immediate shift in level supported the strength of the intervention prompt for influencing the behavior of Michael’s teacher. In addition, the mean level for the first intervention phase was 13.3% (range = 5%–28%), however there was a decelerating trend in a nontherapeutic direction. This change in mean level accounted for an increase of 7.6 percentage points from the baseline mean. Such a favorable increase in mean level again demonstrated the strength of the 3-minute intervention prompt, however the percentage of nonoverlapping data between baseline and intervention was 44%, with an Ineffective rating.
In the second intervention phase, the mean level was 15.5% (range = 10%–23%). Although this was an increase of 2.2 percentage points from the first intervention phase, it was also an increase of 9.8 percentage points from the mean displayed in baseline. The percentage of nonoverlapping data between baseline and the second intervention phase was 83%, with an *Effective* rating.

The mean in the third intervention phase was 15.0% (range = 7%–22%) and there was a decelerating trend in a nontherapeutic direction. This change in the teacher’s performance level accounted for a 0.5 percentage point decrease from the second intervention phase and a 9.3 percentage point increase from the mean level in baseline. According to the mean levels, there was a favorable increase in the teacher’s use of behavior-specific praise statements when the 3-minute intervention prompt was in effect, although the percentage of nonoverlapping data between baseline and the third intervention phase was 67%, with a *Questionable* rating.

*Percentage of teacher administered behavior-specific praise statements with the 5-minute intervention prompt.* During baseline, the mean level for teacher administered behavior-specific praise statements was 5.7% (range = 0%–12%), with a slightly accelerating trend. In the last session of baseline, Michael’s teacher was administering behavior-specific praise statements at a level of 2%. When the 5-minute intervention prompt was introduced, the teacher’s percentage of behavior-specific praise statements increased to 13% in the first session. This 11 percentage point shift in level was in a favorable direction. The mean level during intervention was 10.9% (range = 3%–27%); however, there was a very slight decelerating trend in a nontherapeutic direction, and the
percentage of nonoverlapping data between baseline and intervention was 33%, with an *Ineffective* rating. The change in mean level from baseline to intervention accounted for an increase of 5.2 percentage points. Such a change in mean level demonstrated the positive effect of the 5-minute intervention prompt for increasing the teacher’s performance level of administering behavior-specific praise statements.

*Figure 53.* Percentage of behavior-specific praise statements administered by Michael’s teacher across alternating treatments.
Figure 54. Percentage of behavior-specific praise statements administered by Michael’s teacher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 55. Percentage of behavior-specific praise statements administered by Michael’s teacher across baseline and intervention conditions with means and trend lines.
**Teacher administered reprimands.** The findings for the use of reprimands by Michael’s teacher are illustrated in Figures 56–59. Results indicated that Michael’s teacher administered the least amount of reprimands when the 1-minute intervention prompt was in effect, although the preferred ratio of behavior-specific praise statements to reprimands (i.e., 4:1 in favor of praise) was never achieved.

**Percentage of teacher administered reprimands with the 1-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 35.1% (range = 12%–60%), with high variability. In the last session of baseline, Michael’s teacher was administering reprimands at a level of 17%. When the 1-minute intervention prompt was introduced, there was an immediate increase to 23% in the first session. Such an immediate shift in level although small, did not provide evidence of the effectiveness of the 1-minute intervention prompt in influencing the behavior of Michael’s teacher. The mean level for the first intervention phase was 35.9% (range = 13%–65%). This change in mean accounted for a 0.8 percentage point increase from the mean level in baseline. Such a change in mean level did not support the strength of the 1-minute intervention prompt for decreasing the percentage of reprimands issued by Michael’s teacher. The percentage of nonoverlapping data was 0%, with an *Ineffective* rating.

The mean level in the second intervention phase was 35.8% (range = 27%–47%). This accounted for a decrease of 0.1 percentage point from the first intervention phase, but was still a slight increase of 0.7 percentage point from the mean displayed in baseline. According to the mean levels, there was a very slight increase in the teacher’s use of
reprimands when the 1-minute intervention prompt was in effect. The percentage of nonoverlapping data was 0%, with an Ineffective rating.

**Percentage of teacher administered reprimands with the 3-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 35.1% (range = 12%–60%). In the last session of baseline, Michael’s teacher was administering reprimands at a level of 17%. When the 3-minute intervention prompt was introduced, there was an immediate increase to 28% in the first session. This accounted for a nontherapeutic shift of 11 percentage points. Such an immediate shift in level did not support the treatment’s effectiveness for influencing the behavior of Michael’s teacher in such a way so as to decrease the number of reprimands. In addition, the mean level for the first intervention phase was 36.2% (range = 17%–57%), with an accelerating trend in a nontherapeutic direction. The change in mean accounted for an increase of 1.1 percentage points from the baseline mean and did not provide evidence for the effectiveness of the 3-minute intervention prompt. The percentage of nonoverlapping data was 0%, with an Ineffective rating.

In the second intervention phase the mean level was 35.5% (range = 27%–47%), with a decelerating trend in a therapeutic direction. Not only was this an increase of 0.7 percentage points from the first intervention phase, but it was also an increase of 0.4 percentage points from the mean displayed in baseline. The percentage of nonoverlapping data was 0%, with an Ineffective rating. Finally, there was a nontherapeutic reversal of trend in the third intervention phase. The mean was 40.3% (range = 30%–47%). This change in the teacher’s performance level of reprimands accounted for a 4.8 percentage
point increase from the second intervention phase and a 5.2 percentage point increase from the mean in baseline. The percentage of nonoverlapping data was 0%, with an *Ineffective* rating. Overall, Michael’s teacher did not show a decrease in the percentage of reprimands administered to students during the time that the 3-minute intervention prompt was in effect.

**Percentage of teacher administered reprimands with the 5-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 35.1% (range = 12%–60%). In the last session of baseline, Michael’s teacher was administering reprimands at a level of 17%. When the 5-minute intervention prompt was introduced, the teacher’s percentage of reprimands immediately increased to 30% in the first session. This change accounted for a 13 percentage point increase. Such a shift in the teacher’s level of reprimands did not offer evidence for the effectiveness of the 5-minute intervention prompt for decreasing teacher administered reprimands. In addition, the mean level during intervention was 36.3% (range = 10%–70%). This change accounted for a 1.2 percentage point increase in reprimands from the baseline mean. The percentage of nonoverlapping data was 0%, with an *Ineffective* rating. Therefore, the teacher’s percentage of reprimands slightly increased when the 5-minute intervention prompt was in effect.
Figure 56. Percentage of reprimands administered by Michael’s teacher across alternating treatments.
Figure 57. Percentage of reprimands administered by Michael’s teacher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 58. Percentage of reprimands administered by Michael’s teacher across baseline and intervention conditions with means and trend lines.
**Analysis for Christopher’s Teacher**

The findings for Christopher’s teacher are illustrated in Figures 60–66. Results pertaining to the teacher’s use of behavior-specific praise statements are first addressed. Next, the teacher’s use of reprimands are addressed. The following analysis examines each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) and their impact on the teacher’s use of both behavior-specific praise statements and reprimands.
Teacher administered behavior-specific praise statements. The findings for the use of behavior-specific praise statements by Christopher’s teacher are illustrated in Figures 60–62. Results indicate that Christopher’s teacher administered the greatest number of behavior-specific praise statements when the 1-minute intervention prompt was in effect. This was followed by the 3-minute intervention prompt which yielded the second greatest percentage of teacher administered behavior-specific praise statements. Finally, the 5-minute intervention prompt resulted in the least amount of teacher administered behavior-specific praise statements. Overall, both the 1-minute and 3-minute intervention prompts resulted in the greatest increase of teacher administered behavior-specific praise statements when treatment mean levels were compared to baseline.

Percentage of teacher administered behavior-specific praise statements with the 1-minute intervention prompt. During baseline, the mean level for teacher administered behavior-specific praise statements was 4.4% (range = 0%–22%), with a slightly accelerating trend in a therapeutic direction. In the last session of baseline, Christopher’s teacher was administering behavior-specific praise statements at a level of 5%. When the 1-minute intervention prompt was introduced, there was an immediate increase to 20% in the first session. Such an immediate shift in level strongly supported the effectiveness of the 1-minute intervention prompt for influencing the behavior of Christopher’s teacher. In addition, the mean level for the first intervention phase was 18.7% (range = 17%–25%). This change in mean level accounted for an increase of 14.3 percentage points from the mean in baseline. Such a favorable increase in mean level further demonstrated the
strength of the 1-minute intervention prompt for increasing the teacher’s performance level of administering behavior-specific praise statements, although the percentage of nonoverlapping data between baseline and intervention was 17%, with an Ineffective rating.

The mean level in the second intervention phase was 19.3% (range = 17%–25%). This accounted for an increase of 0.6 percentage point from the first intervention phase and 14.9 percentage points from the mean displayed in baseline. Overall, there was a favorable increase in the teacher’s use of behavior-specific praise statements when the 1-minute intervention prompt was in effect, although the percentage of nonoverlapping data between baseline and the second intervention phase was 17%, with an Ineffective rating.

**Percentage of teacher administered behavior-specific praise statements with the 3-minute intervention prompt.** During baseline, the mean level for teacher administered behavior-specific praise statements was 4.4% (range = 0%–22%), with a slightly accelerating trend. In the last session of baseline, Christopher’s teacher was administering behavior-specific praise statements at a level of 5%. When the 3-minute intervention prompt was introduced, there was an immediate increase to 8% in the first session. This was a favorable shift; however, it was very small. The mean level for the first intervention phase was 8.5% (range = 5%–17%); however there was a decelerating trend in a nontherapeutic direction. This change in mean level accounted for an increase of 4.1 percentage points from the baseline mean. Although small, such an increase in mean level did demonstrate the strength of the 3-minute intervention prompt, although the percentage
of nonoverlapping data between baseline and intervention was 0%, with an *Ineffective* rating.

In the second intervention phase, the mean level was 9.2% (range = 7%–12%), with a decreasing trend. Although this change was an increase of 0.7 percentage points from the first intervention phase, it also was a 4.8 percentage point increase from the mean displayed in baseline, although the percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an *Ineffective* rating.

The mean in the third intervention phase was 6.7% (range = 5%–8%); however, there was a continuation of the decelerating trend in a nontherapeutic direction. This change in the teacher’s performance level accounted for a 2.5 percentage point decrease from the second intervention phase and an increase of 2.3 percentage points from the mean level in baseline. According to the mean levels, there was an increase in the teacher’s use of behavior-specific praise statements when the 3-minute intervention prompt was in effect, but not as great as that achieved when the 1-minute intervention prompt was in effect. The percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an *Ineffective* rating.

*Percentage of teacher administered behavior-specific praise statements with the five-minute intervention prompt.* During baseline, the mean level for teacher administered behavior-specific praise statements was 4.4% (range = 0%–22%), with a slightly accelerating trend. In the last session of baseline, Christopher’s teacher was administering behavior-specific praise statements at a level of 5%. When the 5-minute intervention prompt was introduced, the teacher’s percentage of behavior-specific praise
statements increased to 8% in the first session. This 3 percentage point shift in level although small, was in a favorable direction. The mean level during intervention was 5.2% (range = 3%-15%), with an accelerating trend in a therapeutic direction. This change in mean level from baseline to intervention accounted for an increase of 0.8 percentage points. Such a change in mean level although extremely small, demonstrated the minimal but positive effect of the 5-minute intervention prompt for increasing the teacher’s performance level of administering behavior-specific praise statements, although the percentage of nonoverlapping data between baseline and intervention was 0%, resulting in an Ineffective rating.

**Figure 60.** Percentage of behavior-specific praise statements administered by Christopher’s teacher across alternating treatments.
Figure 61. Percentage of behavior-specific praise statements administered by Christopher’s teacher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 62. Percentage of behavior-specific praise statements administered by Christopher’s teacher across baseline and intervention conditions with means and trend lines.
**Teacher administered reprimands.** The findings for the use of reprimands by Christopher’s teacher are illustrated in Figures 63–66. Results indicated that Christopher’s teacher administered the least amount of reprimands when the 1-minute intervention prompt was in effect, although the preferred ratio of behavior-specific praise statements to reprimands (i.e., 4:1 in favor of praise) was never achieved.

**Percentage of teacher administered reprimands with the 1-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 25.1% (range = 5%–55%), with variability and an increasing trend in a nontherapeutic direction. In the last session of baseline, Michael’s teacher was administering reprimands at a level of 20%. When the 1-minute intervention prompt was introduced, there was an immediate decrease to 0% in the first session. Such an immediate 20.0 point shift in level provided evidence for the effectiveness of the 1-minute intervention prompt in influencing the behavior of Christopher’s teacher, although there was a very slight accelerating trend. The mean level for the first intervention phase was 17.2% (range = 0%–52%). This change in mean level accounted for a decrease of 7.9 percentage points from the mean level in baseline, further supporting the strength of the 1-minute intervention prompt for decreasing the number of reprimands issued by Christopher’s teacher. The percentage of nonoverlapping data however, between baseline and intervention was 17%, with an *Ineffective* rating.

The mean level in the second intervention phase was 36.5% (range = 20%–55%). Although there was a decreasing trend in a therapeutic direction, the change in mean level accounted for an increase of 19.3 percentage points from the first intervention phase and
an increase of 11.4 percentage points from the mean displayed in baseline. Overall, there was an increase in the teacher’s use of reprimands when the 1-minute intervention prompt was in effect during the second intervention phase. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an *Ineffective* rating.

**Percentage of teacher administered reprimands with the 3-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 25.1% (range = 5%–55%). In the last session of baseline, Christopher’s teacher was administering reprimands at a level of 20%. When the 3-minute intervention prompt was introduced, there was an immediate decrease to 7% in the first session. This change accounted for a shift of 13 percentage points in a therapeutic direction. Such an immediate shift in level supported the treatment’s effectiveness for influencing the behavior of Christopher’s teacher in such a way so as to decrease the number of reprimands. In addition, the mean level for the first intervention phase was 16.9% (range = 0%–32%). This change in mean accounted for a decrease of 8.2 percentage points from the baseline mean. There was however, an accelerating trend in a nontherapeutic direction and the percentage of nonoverlapping data between baseline and intervention was 6%, with an *Ineffective* rating.

In the second intervention phase the mean level was 33.7% (range = 5%–48%), with a decelerating trend. Not only was this an increase of 16.8 percentage points from the first intervention phase, but it was also an increase of 8.6 percentage points from the
mean displayed in baseline. The percentage of nonoverlapping data between baseline and the second intervention phase was 0%, with an Ineffective rating.

Finally, in the third intervention phase there was a nontherapeutic reversal of the trend, however the mean was 22.2% (range = 5%–48%). This change in the teacher’s performance level of reprimands accounted for an 11.5 percentage point decrease from the second intervention phase and a 2.9 percentage point decrease from the mean in baseline. Although the second intervention phase showed an increase in teacher administered reprimands; in the third intervention phase Christopher’s teacher did exhibit a very small decrease in the percentage of reprimands administered when compared to baseline. The percentage of nonoverlapping data between baseline and the third intervention phase was 0%, with an Ineffective rating.

**Percentage of teacher administered reprimands with the 5-minute intervention prompt.** During baseline, the mean level for teacher administered reprimands was 25.1% (range = 5%–55%), with a nontherapeutic accelerating trend. In the last session of baseline, Christopher’s teacher was administering reprimands at a level of 20%. When the 5-minute intervention prompt was introduced, the teacher’s percentage of reprimands increased to 22% in the first session. This change accounted for a 2 percentage point increase in a nontherapeutic direction. The mean level during intervention, however, was 16.9% (range = 2%–57%), and there was a reversal of the trend in a therapeutic direction. This change accounted for a decrease of 8.2 percentage points from baseline to intervention. Therefore, results showed that Christopher’s teacher did experience a decrease in the percentage of teacher administered reprimands when the 5-minute
intervention prompt was in effect, although the percentage of nonoverlapping data between baseline and intervention was 11%, with an *Ineffective* rating.

*Figure 63.* Percentage of reprimands administered by Christopher’s teacher across alternating treatments.
Figure 64. Percentage of reprimands administered by Christopher’s teacher across baseline and intervention conditions with percentage of nonoverlapping data (PND).
Figure 65. Percentage of reprimands administered by Christopher’s teacher across baseline and intervention conditions with means and trend lines.
Figure 66. Ratio of reprimands to behavior-specific praise statements observed for Christopher’s teacher.
Ratio of Reprimands to Behavior-Specific Praise Statements

Observed for all Three Teachers

Figure 67 shows the ratio of teacher reprimands to behavior-specific praise statements for all three teachers. Samantha’s teacher had the most favorable reduction in the gap between reprimands and behavior-specific praise statements when the 1-minute intervention prompt was in effect during the first and second rotation, as a 1:1 ratio was achieved. Michael’s teacher also had the most favorable reduction in the gap between reprimands and teacher administered behavior-specific praise statements when the 1-minute intervention prompt was in effect. In addition, the ratio of reprimands to behavior-specific praise statements was reduced by 50% when the 3-minute intervention prompt was in effect, during the final rotation.

Finally, Christopher’s teacher also had the most favorable reduction in the gap between reprimands and teacher administered behavior-specific praise statements when the 1-minute intervention prompt was in effect. Similar to Michael’s teacher, reprimands were reduced by 50% when the 3-minute intervention prompt was in effect, during the final rotation of the study.
Figure 67. Ratio of teacher reprimands to behavior-specific praise statements.
Reliability

Periodic interobserver checks were conducted for a minimum of 27% of the sessions to determine the reliability of the observer agreement information. Reliability was assessed for 30% of the sessions for Samantha, and 27% of the sessions for both Michael and Christopher. Average agreement on the occurrence and nonoccurrence of target behaviors for Samantha was 95% for on-task, 91% for verbal off-task, 93% for out-of-seat off-task, 85% for touching off-task, and 90% for non-engagement off-task behavior. Average agreement for Michael was 96% for on-task, 93% for verbal off-task, 95% for out-of-seat off-task, 87% for touching off-task, and 96% for non-engagement off-task behavior. Average agreement for Christopher was 99% for on-task, 97% for verbal off-task, 96% for out-of-seat off-task, 89% for touching off-task, and 99% for non-engagement off-task behavior.

Average agreement on the occurrence and nonoccurrence of teacher behaviors for Samantha’s teacher was 95% for behavior-specific praise statements and 99% for reprimands. Average agreement for Michael’s teacher was 97% for behavior-specific praise statements and 95% for reprimands. Average agreement for Christopher’s teacher was 95% for behavior-specific praise statements and 93% for reprimands.

Social Validity

One element of the alternating treatments design includes making a decision as to which treatment to move forward with, in the final phases of the design. This particular aspect also hints at social validity which takes into consideration whether the treatment was meaningful to both participants and consumers. In the third intervention phase,
teacher participants were asked about the feasibility of administering behavior-specific praise in the 1-minute and 3-minute delivery interval. All three teacher participants stated a preference for the 3-minute delivery interval for teacher administered behavior-specific praise. Teacher participants chose the 3-minute delivery interval because it was not as demanding as the 1-minute interval which they felt was difficult to administer while also attending to the responsibilities of teaching. In addition, teacher participants reported feeling satisfied that they could still influence student behavior under the more lenient and relaxed 3-minute delivery interval (i.e., intervention prompt).
CHAPTER IV

DISCUSSION

The purpose of this study was to examine the effects of teacher administered behavior-specific praise on promoting students’ positive on-task behavior, as well as their disruptive and non-engaging behaviors in the classroom setting. Differences in student behaviors were examined across different intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) for delivery of teacher administered behavior-specific praise. Results of this study extend the research regarding evidence-based practices as it directly relates to the application of a specific technique and addresses the need of teachers (i.e., general and special education) to find effective, practical, and nonintrusive means for increasing positive classroom behavior. Results from the preceding chapter are examined in relation to the two stated research objectives: (a) the effect of teacher administered behavior-specific praise for promoting positive student behavior (i.e., on-task) and decreasing negative behaviors (i.e., verbal off-task, out-of-seat, touching, and non-engagement) in the classroom setting, and (b) the effects and feasibility of delivering teacher administered behavior-specific praise at varying time intervals (1-minute, 3-minute, and 5-minute intervals). Limitations of the study are addressed in the discussion, in addition to recommendations for future research.

Two of the three student participants were 6-years-old and were enrolled in a first grade, primary general education program. One was female and the other was male. The third student was in seventh grade, 12-years-old, and was in a special education program for students with learning disabilities. All three students were nominated by their teachers.
for participation in this study due to their inattentive and inappropriate classroom behaviors. An alternating treatments design was used to evaluate the effect of three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) for the delivery of teacher administered behavior-specific praise on promoting positive, on-task behavior in all three student participants in this study. In addition, occurrences of student off-task behavior were recorded in one of four categories (i.e., verbal, out-of-seat, touching, and non-engagement). Data regarding teachers’ use of behavior-specific praise and reprimands over the course of the study were also evaluated.

Overall, on-task behavior for each of the three student participants was shown to increase when each of the three intervention prompts was used for the delivery of teacher administered behavior-specific praise. In addition, three out of four off-task behaviors (i.e., verbal, out-of-seat, and non-engagement) were shown to decrease for each of the three student participants when the intervention prompt was in effect for the delivery of teacher administered behavior-specific praise. Although the three teacher participants provided more behavior-specific praise statements when the three intervention prompts were in effect, teacher participants did not necessarily administer fewer reprimands. The findings for the three student participants are summarized in the following section, followed by a summary of the findings for the three teacher participants.

**Summary of Findings for the Three Primary Participants**

On-task behavior increased for each of the three student participants when teachers delivered behavior-specific praise. The on-task behavior of all three students increased when each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute
intervals) for the delivery of teacher administered behavior-specific praise was in effect; however the most favorable results occurred when the 1-minute or 3-minute intervention prompt was in effect. For example, Samantha’s mean level of on-task behavior increased to 64.9% when the 1-minute intervention prompt for delivery of teacher administered behavior-specific praise was in effect, from that of 40.4% in baseline. This was an increase of 24.5 percentage points. When the 3-minute intervention prompt was applied, Samantha’s mean level of on-task behavior increased to 61.9%. This was an increase of 21.5 percentage points. Likewise, when the 5-minute intervention prompt was implemented, Samantha’s on-task behavior increased to 55.8%, from 40.4% in baseline. This accounted for an increase of 15.4 percentage points.

When the 1-minute intervention prompt was applied with the second student participant, Michael, his mean level of on-task behavior increased from 41.1% in baseline, to 81.5%. This was an increase of 40.4 percentage points. When the 3-minute intervention prompt was applied, Michael’s on-task behavior increased from 41.1% in baseline to 73.2%, thus accounting for an increase of 32.1 percentage points. Finally, when the 5-minute intervention prompt was implemented, Michael’s mean level of on-task behavior increased from 41.1% in baseline to 59.6%. This was an increase of 18.5 percentage points.

When the 1-minute intervention prompt was in effect for the third student participant (i.e., Christopher), Christopher’s on-task behavior increased from 35% in baseline, to 78.6% during intervention. This was an increase of 43.6 percentage points. When the 3-minute intervention prompt was applied, Christopher’s on-task behavior
increased to 67.4%, from 35% in baseline. This was an increase of 32.4 percentage points. Finally, when the 5-minute intervention prompt was implemented, Christopher’s on-task behavior increased from an average of 35% in baseline, to 56.4%. This was an increase of 21.4 percentage points.

Results from the analysis of student participants’ off-task behaviors also showed that three out of four off-task behaviors (i.e., verbal, out-of-seat, and non-engagement) decreased when teacher participants administered behavior-specific praise; however there was minimal decrease in the off-task behavior of touching when teacher administered behavior-specific praise was in effect. The four off-task student behaviors responded differentially to the 1-minute or 3-minute intervention prompt for the delivery of teacher administered behavior-specific praise. When attempting to decrease the off-task behaviors of students, results were the least favorable when the 5-minute intervention prompt was in effect. See Table 7 for the independent variable, in order of effectiveness per student participant. In cases where the 5-minute intervention prompt was not effective, it was not included on the table.

When analyzing the results of student and teacher participants, the percentage of nonoverlapping data (PND; Scruggs & Mastropieri, 1998) was calculated as a method for further analyzing the results from the current single-subject research study, in addition to using visual analysis. According to Parker, Vannest, and Brown (2009), visual analysis has been used in 90% of the studies published over the last 30 years, and is the primary means used to examine the results of single-subject research studies. Advocates of visual analysis argue that its strength is identifying potent treatments (i.e., large treatment effects) that are
Table 7

*Independent Variable in Order of Effectiveness Per Student Participant*

<table>
<thead>
<tr>
<th></th>
<th>On-Task</th>
<th>Off-Task</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Verbal</td>
<td>Out-of-Seat</td>
<td>Touching</td>
<td>Non-Engagement</td>
</tr>
<tr>
<td>Samantha</td>
<td>1-min</td>
<td>3-min</td>
<td>3-min</td>
<td>1 or 3-min</td>
</tr>
<tr>
<td></td>
<td>3-min</td>
<td>1-min</td>
<td>1-min</td>
<td>5-min</td>
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<tr>
<td></td>
<td>5-min</td>
<td>5-min</td>
<td>5-min</td>
<td></td>
</tr>
<tr>
<td>Michael</td>
<td>3-min</td>
<td>1-min</td>
<td>3-min</td>
<td>3-min</td>
</tr>
<tr>
<td></td>
<td>1-min</td>
<td>3-min</td>
<td>1-min</td>
<td>1-min</td>
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<tr>
<td></td>
<td>5-min</td>
<td>5-min</td>
<td>5-min</td>
<td></td>
</tr>
<tr>
<td>Christopher</td>
<td>1or 3-min</td>
<td>1-min</td>
<td>1or 3-min</td>
<td>1-or 3-min</td>
</tr>
<tr>
<td></td>
<td>5-min</td>
<td>3-min</td>
<td>5-min</td>
<td>5-min</td>
</tr>
<tr>
<td>Overall</td>
<td>1or 3-min</td>
<td>1or 3-min</td>
<td>1or 3-min</td>
<td>1or 3-min</td>
</tr>
<tr>
<td></td>
<td>5-min</td>
<td>5-min</td>
<td>5-min</td>
<td>5-min</td>
</tr>
</tbody>
</table>

easily recognizable through visual inspection (Kazdin, 2011); however critics counter that although large treatment effects are desirable, in reality the majority of single-subject research studies have small effects (Parker et al., 2009). Furthermore, they asserted that the presence of variability in the data, in addition to the lack of objectivity when using visual inspection, make it difficult to accurately determine the effectiveness of an intervention (Parker et al., 2009).

One possible solution to this criticism is the use of a statistic for determining the effect size of single-subject research studies, in addition to the use of visual analysis. The PND (i.e., percentage of nonoverlapping data) is one such statistic which accounts for any overlapping data that occur between baseline and each of the intervention phases.
According to Parker et al. (2009), the PND statistic offers a quick and easy way to calculate an effect size (i.e., amount of behavior change between phases) from graphed results (Parker, Hagan-Burke, & Vannest, 2007), thus lending support that a functional relationship exists between the treatment and dependent variable (Parker et al., 2009). The PND procedure provides another way of interpreting data by assigning an effectiveness rating to the percentage of nonoverlapping data that is calculated between treatment phases and baseline.

According to the effectiveness ratings, the greater the percentage of nonoverlapping data, the greater the effect of the intervention on the dependent variable(s). Caution must be exercised however when analyzing results which use the PND, as the presence of an outlier in a therapeutic direction in baseline data has the potential to misrepresent or minimize the treatment effect, thereby creating a floor or ceiling effect which fails to identify the magnitude, consistency, or specific nature of the change (e.g., mean, level, trend; Parker et al., 2009; Wolery, Busick, Reichow, & Barton, 2010). For example, if baseline data reach zero in a therapeutic direction, then the PND will yield a score of 0%, with an Ineffective rating. In practice, however, just one session of zero occurrences of inappropriate behavior can mask the existence of otherwise consistently disruptive occurrences of behavior within the phase because of that one outlier (Parker et al., 2007).

Table 8 provides a snapshot summary of three out of four off-task behaviors (i.e., verbal, out-of-seat, and non-engagement) across all three student participants when the 3-minute intervention prompt was in effect. A decrease in mean levels between baseline and intervention, across all three student participants shows an improvement in verbal,
out-of-seat, and non-engagement off-task behavior; however the PND ratings alone suggest that the 3-minute intervention prompt was effective in decreasing none of the off-task behaviors presented in Table 7. Thus, it is important to keep in mind that the presence of overlapping data does not necessarily rule out the effectiveness of a treatment (Cooper et al., 2007). According to Parker et al. (2009), no single measure of effect size can adequately indicate whether an intervention caused a change in the dependent behavior.

Given the current emphasis on identifying evidence-based practices and NCLB’s mandate for increased accountability (Parker et al., 2007), the combined use of visual analysis with PND offers a generally acceptable statistical measure of objectivity. This combined approach of using visual analysis with PND may not only help to facilitate future meta-analysis (Gast, 2010), but may also be better received by consumers of intervention research. Such consumers of intervention research may include administrators, program

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**Table 8**

*Three Off-Task Student Behaviors When the 3-Minute Intervention Prompt was in Effect*

<table>
<thead>
<tr>
<th></th>
<th>Verbal Baseline</th>
<th>Verbal Treatment</th>
<th>Out-of-Seat Baseline</th>
<th>Out-of-Seat Treatment</th>
<th>Non-Engagement Baseline</th>
<th>Non-Engagement Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samantha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.0%</td>
<td>20.3%</td>
<td>15.2%</td>
<td>9.4%</td>
<td>19.9%</td>
<td>4.3%</td>
</tr>
<tr>
<td>PND</td>
<td>22% Ineffective</td>
<td>0% Ineffective</td>
<td>0% Ineffective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michael</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>11.9%</td>
<td>11.1%</td>
<td>12.1%</td>
<td>3.3%</td>
<td>33.2%</td>
<td>10.3%</td>
</tr>
<tr>
<td>PND</td>
<td>0% Ineffective</td>
<td>56% Questionable</td>
<td>39% Ineffective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christopher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>36.9%</td>
<td>22.8%</td>
<td>20.6%</td>
<td>5.2%</td>
<td>10.1%</td>
<td>3.2%</td>
</tr>
<tr>
<td>PND</td>
<td>17% Ineffective</td>
<td>0% Ineffective</td>
<td>0% Ineffective</td>
<td></td>
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</tr>
</tbody>
</table>
evaluators, and readers of peer reviewed journals; all of which play a critical role in the advancement and acceptance of single-subject research and the identification of evidence-based practices, as educators, practitioners, and other stakeholders alike, all work to achieve practical and clinical significance in each child’s life as demonstrated by their level of performance in daily functioning (Cowan, Hennessey, Vierstra, & Rumrill, 2004; Parker et al., 2009).

**Summary of Findings for the Three Secondary Participants**

Teacher administered behavior-specific praise is supported in the literature as an effective (Chalk & Bizo, 2004) and naturalistic intervention (Sutherland, 2000). According to the literature, the suggested ratio of praise to reprimands is approximately 4:1 (Walker et al., 1995), ranging from 3:1 (Shores et al., 1993; Sprick, 1981) to 4 or 5:1 (Good & Grouws, 1977) when delivering effective instruction. That is, the most effective instruction includes four behavior-specific praise statements for every reprimand administered. Findings from the current study support the literature which states that the suggested ratio of behavior-specific praise statements to reprimands is frequently underused by teachers (Beaman & Wheldall, 2000; Conroy et al., 2008; Hester et al., 2009; Wehby et al., 2003). Results from this study showed that not only was the suggested ratio of behavior-specific praise statements to reprimands not achieved, but that there were fewer behavior-specific praise statements issued by each of the three teacher participants than there were reprimands.

Results for Samantha’s teacher show that during baseline, the average ratio of teacher administered behavior-specific praise to reprimands was 16:1, in favor of
reprimands. During the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise, the mean ratio changed to 1:1. When the 3-minute intervention prompt for the delivery of behavior-specific praise was in effect, the mean ratio was 3:1, in favor of reprimands. Finally, when the 5-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect, the ratio remained 3:1, in favor of reprimands. Overall, the data show that Samantha’s teacher had the most favorable reduction in the gap between teacher administered behavior-specific praise statements and reprimands when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect during the first intervention rotation, as a 1:1 ratio was achieved. In addition, reprimands decreased to the lowest level when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect.

Results for Michael’s teacher show that during baseline, the average ratio of teacher administered behavior-specific praise to reprimands was 6:1, in favor of reprimands. During the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise, the average ratio changed to 2:1, in favor of reprimands. When the 3-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect, the mean ratio was 3:1, in favor of reprimands. Finally, when the 5-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect, the ratio was also 3:1, in favor of reprimands.

Overall, the data show that Michael’s teacher had the most favorable reduction in the gap between teacher administered behavior-specific praise statements and reprimands.
when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect during the first intervention rotation, as a 2:1 ratio was achieved, and a 1:1 ratio was achieved when the 1-minute intervention prompt was in effect during the second rotation. By the end of the study, the ratio of teacher administered behavior-specific praise statements to reprimands for Michael’s teacher was reduced by 50%, to 3:1 in favor of reprimands when the 3-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect.

Results for Christopher’s teacher show that during baseline, the average ratio of teacher administered behavior-specific praise to reprimands was 6:1, in favor of reprimands. During the phase when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect, the mean ratio changed to 1:1. When the 3-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect, the mean ratio was 2:1, in favor of reprimands. Finally, when the 5-minute intervention prompt for the delivery of behavior-specific praise was in effect, the ratio was 3:1, in favor of reprimands.

Overall, the data show that Christopher’s teacher had the most favorable reduction in the gap between teacher administered behavior-specific praise statements and reprimands when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect during the first intervention rotation, as a 1:1 ratio was achieved. In addition, reprimands also decreased to the lowest level when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect. Similar to the findings for Michael’s teacher, by the end of the study
the ratio of teacher administered behavior-specific praise statements to reprimands for Christopher’s teacher was reduced by 50%, to 3:1, in favor of reprimands when the 3-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect.

Taken together, the results from each of the three teacher participants show that the gap in the ratio of teacher administered behavior-specific praise statements to reprimands was reduced by at least 50% when the 3-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect. Although the difference in delivery ratio did not meet the suggested ratio (i.e., 4:1 in favor of praise), the greatest gains in reducing the gap between teacher administered behavior-specific praise statements and reprimands, in addition to attaining a more therapeutic balance were achieved when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect for each of the three teacher participants.

**Overall Summary of Results**

Positive, on-task behavior increased for student participants in both general and special education when each of the three intervention prompts (i.e., 1-minute, 3-minute, and 5-minute intervals) for the delivery of teacher administered behavior-specific praise was in effect. Although students’ on-task behavior increased when each of the three behavior-specific praise intervals (i.e., 1-minute, 3-minute, and 5-minute) was in effect, the greatest increase in on-task behavior occurred when the 1-minute and 3-minute intervention prompts were in effect. All three teacher participants were given a choice at the end of the third phase of the study as to which of the two intervention prompts (i.e., 1-minute or
3-minute delivery intervals) they preferred for the fourth and final phase of the study. Teacher participants were encouraged to select the intervention prompt for the delivery of teacher administered behavior-specific praise which they believed they could implement with the most accuracy and sustain the longest. Consequently, each of the three teachers chose to continue to administer behavior-specific praise with the 3-minute intervention prompt in effect for the final phase of the study.

The findings from this study are consistent with those in Sutherland et al. (2000), which also showed that the percentage of students’ on-task behavior increased when teacher administered behavior-specific praise was administered. Given that the results from this study mirror those of Sutherland et al. (2000), there is stronger evidence for the use of behavior-specific praise for increasing the on-task behavior of students. Also similar to Sutherland et al., the current study did include a student from special education, but unlike Sutherland et al., the student in this study had a learning disability and not an emotional and/or behavioral disorder, in addition to also including students from general education; thus, this study adds to the body of literature that supports the use of teacher administered behavior-specific praise for increasing the on-task behavior of students with (e.g., emotional and/or behavioral, learning disabilities) and without disabilities.

According to research that served as a basis for the Sutherland et al. study (2000), on-task behavior of students in general education typically ranges from 75%–85% (Rich & Ross, 1989; Walker et al., 1990). Samantha’s on-task behavior in the general education classroom reached its highest level (i.e., 78%) when both the 1-minute and 3-minute intervention prompts for the delivery of teacher administered behavior-specific praise were
in effect, thus reaching the level typical of on-task behavior displayed in a general education classroom (i.e., 75%–85%).

Michael’s on-task behavior in the general education classroom reached its highest level (i.e., 92%) when the 3-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect. This level exceeded the typical level of on-task behavior found in general education classrooms (i.e., 75%–85%). In addition, Michael’s on-task behavior also reached the average level (i.e., 75%–85%) when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect (i.e., 82%).

Finally, Christopher’s on-task behavior in the special education classroom reached its highest level (i.e., 79%) when the 1-minute intervention prompt for the delivery of teacher administered behavior-specific praise was in effect during the first intervention phase, although it was not maintained in the second intervention phase. Therefore, Christopher, who had a learning disability, was also able to increase his on-task behavior to a level of that which is typical in a general education classroom (75%–85%).

**Implications of the Study**

The NCLB Act (2001) was signed into law for the purpose of improving student academic achievement, so as to ensure that all students receive a quality education, including students with disabilities (Simpson et al., 2004; Superfine, 2004). As a result, teachers are challenged to demonstrate professional accountability for student achievement. Given this legislative mandate, establishing a sound classroom management system is central to providing a supportive environment which encourages academic achievement
research shows that teachers are frequently challenged by the disruptive behaviors of students (Conroy et al., 2008), which often results in students with problem behavior being rejected by their peers and teachers (Kendziora, 2004). Consequently, easy-to-implement intervention strategies are critical for promoting positive behavior in the classroom (Lannie & McCurdy, 2007). Although the need for behavioral interventions is clearly established, research shows that evidence-based practices that would be beneficial are rarely used or are applied incorrectly (e.g., Simpson, 1999). The implications of the present study as it relates to the NCLB Act (2001) and closing the research to practice gap, are discussed in the following sections.

**NCLB: Inclusion With Accountability**

As a result of the NCLB Act (2001), teachers are currently challenged to meet increased standards in an effort to demonstrate professional accountability (i.e., teacher effectiveness) as it relates to increasing student achievement which is measured through high stakes testing. Under the NCLB Act (2001), schools have a responsibility to educate every student, including those with disabilities. Student achievement data are often evaluated in relation to subgroups of students, such as students with disabilities, and if students are not achieving appropriately, schools must address areas of deficit (Choi, Seltzer, Herman, & Yamashiro, 2007).

Over the years, special education has survived various extremes of practice in the continuum of service delivery options, ranging from primarily segregated services (e.g., homebound services, residential schools, special schools, separate self-contained
classrooms, pull-out programs including resource rooms), to increased use of inclusionary practices, general education classrooms with collaborative consultation, to no special services (i.e., general education classroom; U.S. Department of Education, 2002b).

Consequently, in today’s schools all educators must work to meet the needs of all learners, including both those who have and have not been identified as having a disability.

When compared to their typically developing peers, students with disabilities have more difficulty not only in academics, but also in academic-related types of behavior (e.g., attending to tasks, persistence in engagement, controlling impulsive behaviors) that are prerequisite to optimal learning (Sutherland et al., 2008). Given that educators must accommodate for the needs of all students in an effort to increase academic achievement, interventions that address academic-related behaviors are in high demand (NCLB, 2001). Teacher administered behavior-specific praise is one empirical intervention (Lannie & McCurdy, 2007) which can be used by all teachers (i.e., general and special education) to promote positive on-task behavior in students and concurrently reduce nonproductive disengaging and disruptive types of behavior (Sutherland et al., 2002). The results of this study show that not only can teachers in general education and special education classrooms implement behavior-specific praise statements at frequent intervals, but that the results of doing so improved students’ behavior considerably.

**Closing the Research to Practice Gap**

**Utilizing best practices from shared research.** Given the demands of the teaching profession, the use of EBPs (i.e., evidence based practices), which are promoted and required by the NCLB Act (2001), have the potential to equip teachers with both
effective and scientifically proven interventions (Simpson et al., 2004). Surprisingly, however, researchers have documented that such EBP practices (i.e., effective teaching and behavior management strategies) are rarely employed in general or special education classroom settings, including those classrooms with teachers serving students who display emotional and/or behavioral disorders (Steinberg & Knitzer, 1992; VanAcker et al., 1996; Wehby et al., 1998; Wehby et al., 1995). Given that NCLB (2001) emphasizes teachers’ responsibility for the achievement of all students, recognizing the value of shared research across disciplines can greatly benefit all teachers (i.e., general and special education).

For example, both preservice and veteran teachers alike (i.e., general and special education) can benefit from research which has investigated effective practices for teaching students who exhibit emotional and behavioral disorders. Not only are teachers of students without emotional and behavior disorders confronted with some of the same challenging behavioral characteristics (Cheney, Flower, & Templeton, 2008), but they also share in behaviors that frequently occur when engaging with students who have problem behavior, including providing less positive feedback (Raver & Knitzer, 2002). In addition, the academic impact can be just as devastating to students who have not yet been identified as having an emotional or behavioral disorder, or who may not be identified as having such a disorder in the future (Conroy et al., 2008). Consequently, such students are at risk for a variety of problems (Ruhl & Berlinghoff, 1992), including off-task behavior in the classroom (Wehby et al., 1995); poor achievement and low grade point average (Gresham, Lane, MacMillan, & Bocian, 1999; U.S. Department of Education, 1995); social skills and communication deficits (Gresham et al., 1999); social withdrawal, isolation, and loneliness
(Mathur, Kavale, Quinn, Forness, & Rutherford, 1998); interpersonal conflicts (Pope, Bierman, & Mumma, 1991); teacher and peer relationship problems (e.g., establishing and maintaining relationships); social rejection (Walker et al., 1995); and low self-esteem (Walker et al., 1995).

In addition, students with emotional and behavioral disorders often exhibit oppositional and defiant behavior, challenge teachers, peers, and staff personnel (Gunter et al., 1993), display disruptive behavior in the classroom, engage in substance abuse, aggression (Wehby et al., 1998), and violence. Furthermore, students who display such characteristics have the highest dropout rate of students in any other category of learners with or without disabilities (Wagner et al., 2006; Wood & Cronin, 1999), and very often experience failure in school, vocation, and later life (Meadows, Neel, Scott, & Parker, 1994; Walker et al., 1995). According to the U.S. Department of Education (2002a), students with or at risk for, emotional and behavioral disorders, account for more than 50% of teachers’ attention. Consequently, early intervention provides an opportunity for prevention (Cheney et al., 2008; Kauffman, Mock, & Simpson, 2007).

Therefore, research which has been conducted on this population of students can potentially benefit an even larger segment of the student population by providing effective interventions for teachers who are confronted with some of the same challenges as those who teach students with emotional and behavioral disorders. Given the emphasis on inclusion of students with disabilities in general education classrooms, maintaining a noninclusionary view of research can only result in further isolation of teachers from viable intervention options. Studies such as the current one, provide evidence that general
education classroom teachers can benefit from the use of evidence-based practices that were previously geared to students with more severe behavior concerns.

**Preservice teacher education.** Today’s teachers are confronted with the challenge of adapting their skill set to the reality of the teaching situation, for which they are often unprepared (Graziano, 2005; Wagner et al., 2006; Walter, Gouze, & Lim, 2006; Warren et al., 2003; Westling, 2010). The reality of many teachers’ situation includes teaching students who display behavioral problems which began in early childhood (Webster-Stratton, 2000). Consequently, it is important that teachers who are currently facing such situations are provided with support, but that we also prepare new teachers to teach effectively, students who display behavioral difficulties (Stempien & Loeb, 2002).

Preservice teacher training has the potential to influence how educators perceive those students whom they consider to have special needs, as educators begin to recognize that special education is not necessarily a place, but rather a specific instructional skill set which all teachers (i.e., general and special education) can provide at some level for their students. However, because many new teachers do not anticipate the classroom behavior problems and other stressors associated with teaching, they often become frustrated and many leave the profession early in their careers (Gruber, Wiley, Broughman, Strizek, & Burian-Fitzgerald, 2002; Lannie & McCurdy, 2007; Public Agenda, 2004, p. 1). Stressors such as large class sizes, an inability to adapt to unexpected changes, and student problem behavior, all contribute to teacher attrition (Brown & Nagel, 2004). Given the expectations of the NCLB Act (2001) and the movement to teach students with disabilities more
frequently in general education settings, it is critical that all preservice teachers are prepared to address the needs (academic and social) of their students.

The results of this study show one effective, easy to use intervention to increase students’ attention to task and decrease their off-task behaviors that can be used by general and special educators. By training preservice teachers to identify and practice specific skills, such as administering behavior-specific praise, teacher education programs have the potential to greatly influence the future effectiveness and success of preservice teachers as they work with students who both have and have not been identified as having a disability.

**Limitations of the Study**

The first methodological limitation of the current study was the inability to generalize results from the student and teacher participants in this study to other students and teachers in various classroom settings. Both the primary and secondary participants were not representative of a random sample, as teacher participants were chosen for convenience to the research, and the students were nominated by the teachers as students who needed intervention regarding their classroom behavior. Future studies would benefit from further replication of this study with teacher and student participants from other classroom settings to further demonstrate that results were not specific to the three student-teacher relationships that were examined in this study.

The second methodological limitation was the number of rotations in the second and third intervention phases. There were 18 consecutive sessions during the first intervention phase, six consecutive sessions during the second intervention phase, and six consecutive sessions during the third intervention phase. Extending the length of both the
second and third intervention phases would permit an even greater opportunity to examine the trend line during both intervention phases, as the longer data are collected the more accurately it represents what is happening in the classroom setting and provides more opportunity for fractionation of the data (Cooper et al., 2007). Consequently, future studies may benefit from one or two additional rotations in both the second and third intervention phases.

The third limitation of this study was the minimal effect of the teacher administered behavior-specific praise intervention prompt on the off-task behavior of touching for the three student participants. Given that this behavior did not have significant occurrences during baseline, perhaps it was not necessary to implement an intervention to address it. That is, the lack of significant occurrences during baseline did not allow for great variation in change during intervention. Future studies would also benefit from further review of the behavioral definition and examination as to why this was the only off-task behavior which did not show a notable decrease when the behavior-specific praise intervention was in effect.

**Recommendations for Future Research**

School is the one agency that has the greatest power and influence to make a difference in the lives of students and their families (Caccamo, 2000). Given the stressors which impact students and their families including poverty, family mental health issues, substance abuse, physical and sexual abuse, and exposure to personal and community violence (Kirst, 1991), intervention and prevention programs are an even greater priority. The use of effective research-based practices are critical as teachers strive to make
meaningful connections with students while establishing classroom management (Wasburn-Moses & Rosenberg, 2008). Therefore, future research would benefit from further examination of the use of teacher administered behavior-specific praise for promoting positive behavior in students. In addition, investigation of the effect of teacher administered behavior-specific praise on increasing successful inclusion experiences will also benefit both students and teachers, as teachers are challenged to demonstrate increased teacher accountability for student achievement.

One possible means of accomplishing the objective of increasing the use of research-based practices by teachers, such as the use of teacher administered behavior specific praise, is through the investigation of the use of graphical performance feedback. According to Casey and McWilliam (2008), the use of graphical performance feedback is one means of narrowing the research to practice gap. Although graphical performance feedback has been used for varying purposes, more recently it has been employed for the purpose of creating positive change in the classroom behaviors of teachers (Casey & McWilliam, 2008). Furthermore, research findings suggest that when feedback is provided, target behaviors increase or decrease as desired (Sutherland, 2000).

Future research would benefit from examination of the use of graphical performance feedback on teachers’ and preservice teachers’ classroom behavior, and more specifically, whether the use of graphical performance feedback increases the use of teacher administered behavior-specific praise with students in general education, special education, and inclusion settings, as demonstrated by an increase in teachers’ percentage of behavior-specific praise statements, in addition to graphing students’ on-task behavior. A
self-evaluation component is recommended for use with the graphical performance feedback intervention, as self-evaluation has been found to be more effective when predictions are made before results are shared (Stronge, 1997).

**Conclusion**

Given the legislative mandate for teacher accountability as it relates to student achievement in the NCLB Act (2001), interventions aimed at securing a safe and instructionally supportive learning environment are especially critical in the current era of high stakes academic achievement testing, as having a safe and supportive learning environment is prerequisite to meaningful instruction occurring. The NCLB Act (2001) mandates increased student achievement for all students, including those who have and have not yet been identified as having a disability (Cohen-Vogel, 2005; Superfine, 2004). Consequently, teachers are held to an even greater degree of accountability as they are expected to practice effective classroom management skills, while attending to student achievement (i.e., more student time on-task). Therefore, interventions aimed at achieving a safe and instructionally productive learning environment are critical, as certain teacher initiated responses actually have the potential to intensify negative student-teacher interactions (Nelson & Roberts, 2000; Nicholson, Anderson, Fox, & Brenner, 2002). Behavior-specific praise has been shown through this study, and the study that served as its basis, to be an effective intervention to achieve such goals.

Although teachers are often aware of the need for such interventions to be implemented in the classroom, they do not often make the transition from potential interventionists to participating interventionists (Peterson & McConnell, 1996). This study
suggests the use of teacher administered behavior-specific praise as an intervention which can be used by teachers for the purpose of promoting positive academic and social behavior in students, including those who have been and are at risk for being identified as having a disability.
APPENDIX A

QUICK REFERENCE GUIDE TO BEHAVIORAL DEFINITIONS
Appendix A

Quick Reference Guide to Behavioral Definitions

**On-task:** Looking at the teacher, working on assignment, asking relevant questions.

**Verbal off-task:** Any audible vocalization made without teacher permission.

**Out-of-seat off-task:** Any non-seated position.

**Touching off-task:** Any physical movement which resulted in a disruption of the educational process.

**Non-engagement off-task:** Not working, not paying attention to the teacher or assignment (but non-disruptive).

**Teacher administered behavior-specific praise statements:** Verbal comments indicating approval of students’ behavior that specify the behavior.

**Teacher administered reprimands:** Verbal comments indicating disapproval of students’ behavior.
APPENDIX B

TRACK CODED DATA SHEET FOR TIME SAMPLING
## Appendix B

### Track Coded Data Sheet for Time Sampling

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| touching | | | | | | TR |
| non-engagement | | | | | | |

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| out-of-seat | | | | | | |
| touching | | | | | | TR |
| non-engagement | | | | | | |

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| verbal | | | | | | |
| out-of-seat | | | | | | |
| touching | | | | | | TR |
| non-engagement | | | | | | |

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|------|------|------|------|------|------| BSW |
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| verbal | | | | | | |
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Track coded data sheet for time sampling

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### on-task

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### verbal

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### out-of-seat

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### non-engagement

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REFERENCES
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Sutherland, K. S., Wehby, J. H., & Yoder, P. J. (2002). Examination of the relationship between teacher praise and opportunities for students with EBD to respond to academic requests. *Journal of Emotional and Behavioral Disorders, 10*(1), 5–13.


