Evaluating the Effects of Tootling When Implemented in Special Education Classrooms Providing Behavior Supports

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Evaluating the Effects of Tootling When Implemented in Special Education Classrooms

Providing Behavior Supports

By

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A Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Psychology

In
School Psychology

Minnesota State University, Mankato
Mankato, Minnesota

December 2019
August 22, 2019

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Dedication

This dissertation is dedicated to my family. Thank you for your unwavering love, support, and patience throughout my entire college career. Your encouragement and genuine belief in me has played an essential role in helping me get to where I am today.
Acknowledgements

I would like to thank the members of my committee, Dr. Carlos Panahon, Dr. Kevin Filter, Dr. Shawna Petersen-Brown, and Dr. Alexandra Hilt-Panahon, for their dedication to my training and research. This project would not have been possible without the time they took to provide me with useful feedback, advice, and wisdom.

I want to extend a very special thank you to my advisor, Dr. Carlos Panahon, for his support. I am appreciative of his ability to challenge and encourage his students to be the best they can be. He has always had confidence in my ability to succeed and has guided me through this process. It is a true honor to have him as a mentor.

I would like to thank the members of my cohort, Mary Jane Gunderson and Marissa Hamilton, for accompanying me on this journey. The bond we share is one of a kind and I cannot thank them enough for their support.

I would also like to thank my data collectors, Mary Jane Gunderson and Megan Johnson, for helping me complete this project, as well as the teachers who participated in this study. I am so thankful for their willingness to take the time to assist me.

Finally, I would like to thank the individuals of the School Psychology Program, the Psychology Department, and the College of Social and Behavioral Sciences at Minnesota State University, Mankato. It has been a privilege learning and growing alongside you. Thank you for the amazing opportunities and joy you have brought me.
Abstract of the Dissertation

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Doctor of Psychology in School Psychology
College of Graduate Studies and Research
Minnesota State University, Mankato, 2019

Managing student misbehavior is often a challenge for teachers. Effective classroom behavior management strategies maximize academic instruction time and decrease disruptive behavior. One intervention that has proven to be effective in decreasing disruptive behavior, increasing prosocial behavior, and increasing on-task behavior in the general education classroom is tootling. There are no published studies that have applied tootling in a special education classroom, and this population could greatly benefit from such an intervention.

The current study used a multiple baseline design across settings to examine the effectiveness of a tootling intervention in three special education classrooms with students who exhibit behavior difficulties. Results of the study demonstrated that the tootling intervention is effective in increasing on-task behavior with a sample of students in special education exhibiting behavioral difficulties. The tootling intervention was also effective in decreasing disruptive behavior, and was moderately effective in increasing prosocial behavior. Additional research investigating tootling in a variety of settings and with a variety of individuals is needed to determine the effects of tootling on behavior.
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Chapter 1

Introduction

Managing student behavior is often a challenge for both general and special education teachers, and many educators report feeling inadequately trained to do so (Cihak, Kirk, & Boon, 2009). Without effective behavior management, creating a positive and productive classroom environment is impossible to achieve (Akin-Little, Little, & Gresham, 2004). Effective classroom behavior management strategies maximize academic instruction time and decrease disruptive behavior. Nonetheless, educational environments have traditionally relied on strict systems of rules and regulations with the goal of preventing and reducing inappropriate behavior (Lum, Tingstrom, Dufrene, Radley, & Lynne, 2017). For example, schools sometimes post a list of rules along with their aversive consequences in an attempt to prevent incidental antisocial behavior (Cashwell, Skinner, & Smith, 2001). Zero-tolerance programs are another example of schools utilizing disciplinary strategies to shape behavior. For instance, if a student brings a gun to school, regardless of their intentions, they may be expelled for a year.

Since inappropriate behavior usually leads to being reprimanded, many students learn to avoid teacher observation when performing these behaviors. Although students can sometimes successfully avoid being caught engaging in rule-breaking behavior by educators, when student-against-student antisocial behaviors (e.g., name calling, physical aggression) occur, the victim as well as his or her peers may observe and report classmates’ antisocial behaviors (i.e., tattling; Skinner, Cashwell, & Skinner, 2000). Schools often have procedures for reprimanding inappropriate antisocial and rule-
breaking behaviors, but most educational settings do not have procedures to reinforce prosocial behaviors (Skinner et al., 2000). Thus, in many educational settings, an informal system of tattling has developed in which teachers and students focus their attention primarily on incidental inappropriate behaviors and ignore prosocial behaviors. On the contrary, research has shown that awareness and acknowledgment of appropriate behaviors increases the probability of students engaging in these behaviors (Cashwell et al., 2001). Accordingly, students can be taught to monitor and report peers’ incidental prosocial behaviors (e.g., opening doors, giving positive verbal comments, helping peers with a difficult task, sharing materials) (Cihak et al., 2009).

This procedure, termed “tootling,” will be described and compared to a similar procedure called Positive Peer Reporting (PPR). The components of tootling make it a promising intervention for managing classroom behavior. However, the research surrounding tootling is scarce and the few published studies come exclusively from the general education population. Therefore, following a discussion of classroom management practices, the existing tootling literature is reviewed, as well as a discussion of why tootling would work in special education classrooms, particularly with students exhibiting behavior difficulties. Next, a pilot study that examined the effects of tootling with a sample of students in one EBD classroom is presented. Finally, the current study, which evaluated the effectiveness of a tootling intervention with students in special education who exhibit behavior difficulties is discussed.

**Classroom Management**

As previously mentioned, many general and special education teachers struggle to
manage student misbehavior and promote appropriate behavior (Oliver & Reschly, 2010). Teachers may not always directly observe instances of inappropriate and prosocial behaviors (i.e., student-helping-student) due to competing responsibilities. For example, teachers have many tasks and teach many students, often making it difficult to find time to reinforce desired behavior (Cihak et al., 2009). Further, educators spend a significant amount of time monitoring all students’ inappropriate behaviors that they may not be cognizant of all the incidental prosocial behaviors that occur during daily classroom activities and routines (Skinner, Neddenriep, Robinson, Ervin, & Jones, 2002). In some instances, educators will intentionally ignore appropriate behaviors because they do not feel the students should be rewarded for what they are expected to do. However, research suggests that “reinforcing behaviors within natural environments is an effective and often necessary procedure to promote and maintain social behaviors” (Skinner et al., 2002, p. 195). In other words, rather than ignoring appropriate behaviors, educators should acknowledge (e.g., provide verbal praise) students who are engaging in appropriate behaviors in order to encourage social behaviors.

In addition to reinforcing appropriate behaviors, preventing and decreasing instances of antisocial behaviors should be important in any school system (Skinner et al., 2002). Disruptive behavior in the classroom limits instructional time and may lead to peer rejection for the students who are engaging in them. Thus, schools must aim to not only decrease instances of antisocial behaviors, but to replace them with appropriate behaviors (Skinner et al., 2002). In an attempt to increase instances of prosocial behavior, schools need to emphasize the importance of creating and promoting positive school
Managing classroom behavior and maximizing academic instruction time can be particularly difficult for teachers, as they often feel overwhelmed by the multiplicity of their responsibilities (Oliver & Reschly, 2010). Accountability is high, and provisions from government legislations such as the No Child Left Behind Act and the Individuals with Disabilities Education Improvement Act of 2004 have created increased pressure on teachers to implement data-based interventions in least restrictive environments, ensure that all children progress through the curriculum, and maximize student performance in the classroom (Lambert, 2014; Shelton-Quinn, 2009). Thus, it is essential for teachers to be competent in managing their students’ behavior in the classroom.

Nonetheless, teachers are often reluctant to implement behavior-management systems for a variety of reasons. Many behavior-management strategies are perceived to be too time intensive (Niesyn, 2009). One example of a time intensive technique for managing classroom behavior is a token economy system. Token economies rely on external rewards. More specifically, students earn tokens for exhibiting appropriate behaviors and can later exchange them for tangible rewards such as stickers, pencils, and small prizes. Although token economies are often useful in reinforcing appropriate behaviors, many teachers do not have the time or resources to provide students with rewards for engaging in desired behaviors. Other times, teachers report a lack of the skills needed to support students who require additional behavior support (Niesyn, 2009). Interventions that are most likely to be successfully implemented are: “(a) easy to implement, (b) not time-intensive, (c) positive, (d) perceived to be effective by the
teacher, and (e) compatible with the context in which the intervention will be employed” (Landrum, Tankersley, & Kauffman, 2003, p. 152).

**Peer-Mediated Interventions**

One approach to classroom behavior management that has proven to be both efficient, in terms of resources, and effective are peer-mediated interventions. Peer-mediated interventions are behavioral techniques that use peers to improve behaviors of classmates, and have been found particularly promising in promoting prosocial behaviors (Shelton-Quinn, 2009). In addition, these interventions have proven useful and generalizable within general education populations as well as special education and remedial classes (Lum, 2017). Peers are thought to be ideal agents for implementing behavioral interventions given their large numbers, continual presence, and effectiveness (Shelton-Quinn, 2009).

According to Shelton-Quinn (2009), “children as young as preschool-age can accurately fulfill a wide range of intervention duties including (a) observing and evaluating target children’s responses (Carden-Smith & Fowler, 1983), (b) modeling desired behaviors (Peck, Apolloni, Cook, & Raver, 1978), and (c) providing social antecedents (Strain, Shores, & Timm, 1977)” (p. 25). A meta-analysis by Dart, Collins, Klingbeil, and McKinley (2014) demonstrated that peer-mediated behavioral interventions are overall moderately effective at positively influencing the behavior (as measured by social skills, disruptive behavior, and academic engagement) of other students.

**Positive peer reporting.** PPR is a classwide peer-mediated social skills procedure
in which students earn reinforcement for noticing and reporting a peer’s positive behavior rather than instances of inappropriate behavior (Skinner et al., 2002). Like other peer-mediated interventions, PPR uses students as change agents. Peers are taught to monitor and provide public praise to socially isolated peers in structured daily sessions (Shelton-Quinn, 2009). Specifically, a “star” student is selected by the teacher (i.e., the student who the praise statements will be about), and during PPR sessions, classmates are allowed to provide praise statements. With each appropriate praise statement, the class earns a point or token toward a predetermined number that is chosen by the teacher and his or her students. Once the class has reached their goal, students earn a class reward (Hofstadter, Jones, & Therrien, 2009).

The procedure is based on the assumption that some students who have difficulties interacting with peers may have acquired appropriate social skills, but may be ostracized by their peers because they engage in low levels of appropriate social behaviors. The intervention aims to enhance reinforcement for prosocial behaviors by having peers publicly acknowledge appropriate behavior that occurs in the students’ natural environment, potentially improving peers’ perceptions of targeted students.

Typically, the intervention works by first introducing and defining PPR. For example, the teacher explains to the students that PPR is the opposite of tattling, and that students will be given the chance to earn reinforcement for reporting instances of their peer’s positive behaviors (Skinner et al., 2002). Next, the teacher explains the PPR procedures to the students. The teacher instructs the students to pay special attention to the target child’s positive behaviors during the course of the day. Students are encouraged
to acknowledge the observed incidences of positive behaviors through praise during a specified time (Sherman, 2012).

Components involved in PPR praise statements include: (a) looking at the person, (b) smiling, (c) saying what he or she did, and (d) telling the person he or she did a good job. Reinforcement is withheld for any negative comments and only positive comments are rewarded. Examples of positive comments are given to the students (e.g., sharing, helping a friend, honesty, encouragement). Next, a time is allotted for the PPR procedure (typically 30 to 60 minutes each day) and the effect of the intervention on the quality of peer interactions is monitored through teacher, school psychologist, or researcher observations of social involvement during the allotted time.

PPR was developed as an intervention strategy to individually target children who are socially rejected and/or children who are disruptive or negative in interactions with peers, thus making it an ideal strategy for students exhibiting behavioral difficulties (Skinner et al., 2002). Research findings support PPR’s effectiveness in improving peer social interactions and in decreasing incidents of disruptive behavior in the classroom. For instance, Moroz and Jones (2002) examined the effects of PPR with three children exhibiting socially withdrawn behaviors. The researchers aimed to increase students’ social involvement as measured by engagement in positive interactions with peers or by participation in structured games. During PPR, a target student was selected each day by the teacher and praise was voluntarily given by his or her peers. Students who provided appropriate praise statements earned stickers towards a popcorn party. Results indicated that PPR increased all three children’s social involvement during recess.
Lyons (2004) used PPR to decrease negative behaviors exhibited by children showing aggression. In addition, the researcher wanted to increase positive behaviors exhibited by children who had previously shown withdrawn behaviors, and to examine if changes in behavior generalized to settings which were not close in time to PPR. Two children exhibiting aggressive behaviors and two exhibiting socially withdrawn behaviors participated in the study. Results showed that although the first student (Josh), who was socially withdrawn, did not increase positive behaviors or decrease negative behaviors, he initiated positive behaviors more often during the intervention phase than during baseline. The second child (Beth), who was also socially withdrawn, exhibited increases in positive behaviors, from 5% during baseline to 39% following intervention, as well as decreases in negative social behavior (93% to 60%). Both students who were identified as showing aggression (Kris and Max) showed moderate increases in positive behaviors (9% to 34% and 16% to 24%, respectively) and moderate decreases in negative behaviors (36% to 16% and 28% to 7%, respectively). This study showed that PPR can be effective in decreasing aggressive behaviors and increasing social behaviors, as well as increasing the amount of positive behaviors initiated.

Other studies have also shown that PPR can be effective in restructuring peer social networks characterized by excessive teasing, bullying, and other coercive peer interactions (Skinner et al., 2002). As an added bonus, this strategy allows for teachers to focus more time on instruction in the classroom rather than focusing on disruptive behaviors. However, studies that have examined the effects of PPR have focused solely on targeted students in general education classrooms. Thus, it may be useful for teachers
to consider using more proactive strategies that target the entire class, rather than a single student, with the goal of increasing classwide prosocial behaviors.

**Tootling.** One modified application of PPR is a classwide intervention called “tootling” in which students are encouraged to monitor and report the prosocial behavior of any classmate. In PPR, general positive behavior (e.g., complimenting a peer’s outfit, using manners) is targeted, whereas in tootling, students are taught to spot any of their peers engaging in prosocial behaviors (e.g., opening doors, helping peers with a difficult task, sharing materials) (Cihak et al., 2009). During PPR, students publicly report the prosocial behavior of the target student during brief, planned sessions each day, while in tootling interventions students privately report their peers’ positive behaviors on index cards and submit them to their teacher throughout the day (Morrison & Jones, 2006). Tootles are then read aloud to the class at either the beginning or end of the day.

The term tootling was constructed from the word “tattling” and the phrase “tooting your own horn” (Skinner et al., 2000). Tootling incorporates both of these concepts in that students monitor and report their peers’ behaviors, but the behaviors monitored are exclusively prosocial behaviors. Tootling is based on the assumption that “peers spend so much time monitoring classmates’ socially inappropriate behavior that they may not be aware of, respond to (e.g., socially reinforce), or value incidental prosocial behavior” (Skinner et al., 2002, p. 195).

**Key components.** There are several steps to follow when implementing a tootling intervention. First, the teacher is taught by researchers or other consultants, such as school psychologists, how to train students on, and implement the procedures of, the
tootling intervention. Like PPR, the classroom teacher briefly trains the students on how to report positive behaviors and reinforcement procedures are used to encourage students to report peers’ incidental positive behavior (Skinner et al., 2002). Verbal examples of prosocial behaviors are then given and students are asked to provide their own examples of how they can help others at home and school. The classroom teacher praises appropriate examples and offers corrective feedback for examples that do not meet the criteria for appropriate prosocial behaviors. The next day, students are asked to write down examples of who (classmate), did what (helpful behavior), and for whom (who they helped). The examples are read aloud and praise and corrective feedback are provided again by the teacher.

Once training is completed, the next step is to implement an interdependent group contingency in an effort to focus students’ attention on the desired behaviors. That is, the class works together to report their classmates’ prosocial behaviors in an attempt to earn a group reward (e.g., a pizza party, extended recess time). Whereas PPR often relies on dependent group contingencies in which the class receives a reward based on the performance of a select individual (i.e. the star student), research suggests that group-oriented contingency systems can be extremely effective in reducing class levels of disruptive behavior (Gresham & Gresham, 1982). In addition, the group contingency helps foster cooperation, rather than competition, as the entire class works together toward earning a common goal, making the contingency an important component of tootling (Skinner et al., 2000). An interdependent group contingency is especially beneficial in this case because it allows teachers to provide reinforcement much more
efficiently. Rather than reinforcing every instance of positive behavior and reminding students that they are working toward a class goal, students must work together to ensure appropriate behavior and remind each other of their goals. Therefore, teachers may have more time for academic instruction and have more opportunities to pursue other classroom tasks (Gresham & Gresham, 1982).

Lastly, daily progress towards the class goal is provided in the form of public posting (e.g., marbles in a jar, hanging paper clips) representing the number of class tootles. Daily publicly posted progress feedback may stimulate peers and educators to provide additional reinforcement (e.g., social praise) for prosocial behaviors when tootling (Cashwell, Skinner, & Smith, 2001). Once the class reaches their goal of a set number of reports of prosocial behaviors (i.e., tootles), the class earns a prize, and the number of class tootles returns to zero (Sherman, 2012). Tootling, as a result, is assumed to help enhance classroom environments by increasing the probability that peers will engage in incidental student-helping-student behaviors and also increase their awareness of, and appreciation for, these behaviors (Skinner et al., 2002). However, as the following section explains, there are only a handful of published studies that have examined the effects of tootling. Moreover, until this study and the pilot study preceding it (described on pages 19-20), tootling interventions had only been implemented in general education classrooms and thus, findings are difficult to generalize to other settings such as special education classrooms.

**Published studies.** In the first published peer-reviewed study, Skinner et al. (2000) used an A-B-A-B withdrawal design to evaluate the effects of tootling in a general
education fourth-grade classroom. The goal of the study was to determine if an interdependent group contingency and public posting would result in an increase in tootles completed by students each school day. Prior to implementing the tootling intervention, the authors trained students on how to spot and report instances of prosocial behavior. Following training, the first baseline session was conducted. Students received index cards on which to report their tootles, and a shoebox was placed at the front of the classroom to collect the completed tootles. At the end of the day, the classroom teacher read the examples aloud and gave praise for appropriate tootles and corrective feedback for tootles that did not fit the definition of prosocial behavior.

Next, an intervention phase that consisted of an interdependent group contingency and classwide publicly posted feedback was introduced to the class. A picture of a ladder was used to publicly display the number of tootles the class produced the previous day and to follow the class’ progress towards reaching their goal. The experimenter and teacher agreed that 100 cumulative tootles was an appropriate goal for the class to reach in order to earn an additional 30-minute recess session. This goal was reached after the seventh session, and on the morning students earned their reinforcer, the researcher announced that the class met their goal and that they had a day off from tootling. Therefore, index cards were not given to the students on the morning they earned their reinforcer, and the teacher instead took the students out for recess. The following school day marked the beginning of the second treatment phase, in which the goal was increased to 150 tootles. Students again met this goal and earned another reward, 30-minutes of extra recess at the “far” play area, which the class considered special. After the class met
their second goal, a 3-day withdrawal period was implemented in which the experimenter asked the students to continue to record instances of peers’ prosocial behavior, but without a goal or reward established. Thus, no publicly posted feedback was provided during this withdrawal phase. After 3 days, a new goal of 150 tootles and a new reward of watching a movie were announced. Once students met the goal, the researchers concluded the study. When researchers returned one week later, they found that the classroom teacher was continuing to implement the tootling intervention independently.

This study showed that an interdependent group contingency and publicly posted feedback could be effective in increasing general education students’ rates of tootling. However, results were highly variable during the initial baseline and intervention phases. In addition, there were several threats to internal and external validity of the study such as the school’s principal threatening to limit recess time. Nonetheless, this study confirmed the notion that rates of tootling can be increased using an interdependent group contingency and publicly posted feedback.

Cashwell et al. (2001) sought to replicate and extend the findings from Skinner et al. (2000) by attempting to demonstrate that younger students (i.e., second grade) could be taught to observe and report peers’ prosocial behaviors. The authors hoped to show that using an interdependent group contingency and posted feedback could both increase and maintain rates of tootling. Similar to Skinner et al. (2000), the authors utilized an A-B-A-B withdrawal design with similar intervention procedures. Students were first taught by researchers how to report peers’ prosocial behaviors (i.e., tootle) and practiced tootling prior to baseline without rewards or feedback. During intervention phases, the
students were able to earn a group reinforcer (e.g., extra recess time) through an interdependent group contingency. Although results were variable across each of the four phases, the overall number of tootles submitted was significantly higher when the interdependent group contingency and public posting (i.e., poster with the image of a ladder) components were utilized compared to baseline phases. However, the authors did not provide numbers of tootles in their discussion of the results, and the reader has to rely on the graph to compare rates of tootling. An important question that was left unanswered was whether the intervention actually influenced students’ rates of prosocial behavior, or if the program simply increased the number of tootles. This study focused on number of prosocial behavior reports each day, rather than having observers (e.g., the classroom teacher, experimenters) record actual instances of observed prosocial behaviors.

The studies completed by Skinner et al. (2000) and Cashwell et al. (2001) laid the foundation for tootling. Skinner et al. (2000) examined the effects of tootling on reports of prosocial behaviors and demonstrated the potential effectiveness of utilizing an interdependent group contingency and publicly posted feedback to increase general education students’ rates of tootling. Cashwell et al. (2001) replicated the Skinner et al. (2000) study in a second-grade general education classroom. Results suggested that training students to tootle increased rates of positive peer reports initially, but that a group contingency and feedback component were necessary to maintain elevated levels of positive peer reports throughout intervention.

Morrison and Jones (2006) combined components of both PPR and tootling into a single intervention to examine the effects of PPR as a classwide positive behavior
support. In this study, the public reporting format of PPR was combined with the whole group aspect that tootling provides to examine the intervention’s effects on classwide measures of social and emotional behaviors. Participants were from two third-grade general education classrooms at an inner-city public school. The first classroom had 13 students, one was identified as having a cognitive disability and two other students were referred for a suspected disability during the course of the study. The second classroom had 14 students with one identified as having an emotional disturbance.

A multiple baseline design across subjects was used to evaluate the effects of PPR on the average daily score per week on an adapted version of the Critical Events Index (CEI). The CEI is a checklist of 33 low-frequency, high intensity behaviors that is used to identify students who may be at risk for developing behavioral disorders (Todis, Severson, & Walker, 1990). Higher scores on this measure indicate more instances of observed inappropriate behaviors. Both classrooms demonstrated decreased frequencies of critical behavior events (e.g., tantrums, ignoring teacher warnings, using obscene language, teasing peers) during both conditions. These findings indicate that PPR and tootling may reduce the frequency of critical, maladaptive social behaviors observed by teachers. Further, this study provides evidence that classwide peer-mediated interventions can be successfully implemented with students who have disabilities.

Although Morrison and Jones (2006) produced promising results using a combined tootling-PPR intervention, there had still not been any studies that implemented a standard tootling intervention with students who have disabilities. Cihak et al. (2009) was the first study to implement a tootling intervention in an inclusive
classroom where four of the 19 total students were identified as having a disability (SLD, ADHD, or both). Researchers examined the use of tootling in conjunction with a group contingency procedure with the goal of reducing the number of disruptive behaviors in a third-grade classroom. An A-B-A-B withdrawal design was implemented with a training phase, interdependent group contingency, and publicly posted feedback. The total number of disruptive behaviors exhibited by the entire class was the dependent measure, rather than attempting to simply increase the number of tootles produced by students as in earlier studies. Researchers found that upon using a tootling intervention, rates of disruptive classroom behavior decreased. However, the authors noted that it was not clear if this was due to the tootling intervention itself, the group contingency, or a combination of both tootling and the contingency.

Lambert, Tingstrom, Sterling, Dufrene, and Lynne (2015) sought to replicate the effects of Cihak et al. (2009) and to assess tootling’s effects on classwide appropriate behavior in upper-elementary students in general education classrooms. Participants were from a fourth-grade classroom and a fifth-grade classroom in a Southeastern state. The fifth-grade classroom did not have any students with disabilities, while the fourth-grade classroom had two students with a specific learning disability. The primary dependent measure was instances of disruptive behaviors exhibited by students, and appropriate behavior exhibited by the students in the classroom was a secondary dependent variable.

Two A-B-A-B withdrawal designs with a multiple baseline element across classrooms were used to assess the effectiveness of the tootling intervention for decreasing classwide disruptive behavior and increasing appropriate behavior (Lambert et
al., 2015). Tootling combined with an interdependent group contingency and publicly posted feedback demonstrated decreases in classwide disruptive behavior as well increases in appropriate behavior compared with baseline and withdrawal phases across both classrooms. Despite these promising results, additional replications are needed to support the use of tootling as an effective intervention to decrease classwide disruptive behavior and increase appropriate behavior. Additionally, the effects of tootling had only been demonstrated at the elementary level and additional research would need to be conducted to determine tootling’s effectiveness across other developmental levels such as middle and/or high school.

Lum and colleagues (2017) extended the tootling literature by examining the effects of a tootling procedure on students’ behavior in three general-education classrooms from a rural high school in a Southeastern state. The primary dependent variable in the study was classwide disruptive student behaviors (i.e., inappropriate vocalizations, being out of seat, playing with objects) as identified by the teachers. A secondary dependent measure of classwide academically engaged (either passive or active) student behavior was collected.

An A-B-A-B withdrawal design with follow-up was used in each of the three classrooms to determine the effectiveness of the intervention for decreasing disruptive behaviors and increasing academically engaged behavior (Lum et al., 2017). Results showed decreases in classwide disruptive behavior and increases in academically engaged behavior during intervention phases compared to baseline and withdrawal phases in all three participating classrooms, demonstrating the effectiveness of a tootling
toothling has been investigated in several different settings such as elementary general education classrooms and high school general education classrooms. Findings are promising as they have demonstrated that an interdependent group contingency and publicly posted feedback can be effective in increasing students’ rates of reporting peers’ prosocial behaviors (Skinner et al., 2000). Furthermore, toothling has been shown to increase students’ initiation of social interactions and decrease negative peer interaction rates (Jones, Young, & Friman, 2000). However, additional research is needed to see if these findings can be extended to students in special education, particularly for those with behavior difficulties.

Applying Toothling to Special Education Classrooms

Educating students in special education, particularly those with emotional and behavioral difficulties, pose a challenge for many teachers because of the complex nature of the behaviors exhibited (Oliver & Reschly, 2010). Students with Emotional and Behavioral Disorders (EBD) tend to engage in higher rates of inappropriate behavior compared to their peers without behavior difficulties (Landrum et al., 2003). Students with EBD commonly exhibit externalizing behaviors such as classroom disruptions and aggression, while other times internalizing behaviors such as anxiety and social withdrawal are noted. Further, problem behaviors can lead to social rejection and vice versa. Research has shown that students who engage in aggressive, withdrawn, or inattentive-hyperactive behaviors are more likely to be rejected by their peers (Skinner, Neddenriep, Robinson, Ervin, & Jones, 2002). In addition, students who are socially
rejected are more likely to experience other school-related problems, engage in delinquent behavior, and experience mental health problems. This has important implications for students exhibiting behavior difficulties since they may lack appropriate social skills. Consequently, students with EBD exhibit more intensive problem behaviors, resulting in limited social interactions and social rejection (Murphy & Zlomke, 2014; Skinner et al., 2000; Skinner et al., 2002). Given the developmental importance of peer relations, there is a clear need to promote social competence among students exhibiting behavior difficulties (Hoff & Ronk, 2006).

Increasing positive peer relations is particularly important for students classified with EBD, given that their placement in inclusive general education classrooms has the potential to increase disruptions and conversely decrease learning and educational opportunities. Although the research is scarce, studies conducted within self-contained classrooms for students with EBD supports these findings. Hofstadter et al. (2009) employed an increasing-intensity design to evaluate the effects of targeted PPR and classwide PPR on the on-task behavior of children with EBD in a restrictive placement. Results indicated that both strategies were moderately effective and that benchmark levels of task engagement were achieved during the classwide PPR procedure. These findings suggest that PPR, when used in brief structured sessions, can increase classwide levels of task engagement and prosocial behaviors among students with EBD.

In addition, Hoff and Ronk (2006) examined the effectiveness of a classwide PPR intervention for seven third- and fourth-grade special education students with cognitive impairments. The authors found an increase in prosocial peer interactions following
classwide PPR implementation during unstructured classroom time. Results supported the use of PPR for increasing prosocial interactions between peers at a classwide and individual level.

Although PPR has been applied to special education classrooms, the need for more research in the areas of applying tootling to special education classrooms cannot be over-emphasized. Murphy and Zlomke (2014) conducted a review of 24 studies that included 48 separately described cases of PPR and tootling in classroom settings. The review provided information concerning adaptations for students in special education, alternative school, and mainstream classrooms. Student participants ranged in age from preschool to eighth grade. Inclusion criteria were: “(1) intervention was primarily conducted in an educational setting, (2) study was reported in a peer-reviewed journal or accepted as a completed master’s thesis or doctoral dissertation, and (3) interventions were referred to as “Positive Peer Reporting,” “Tootling,” or “Peer Praise Reports” within the respective article” (p. 127-128).

Of the 48 cases, the majority of studies (70.8%) were implemented in elementary school classrooms, 18.8% (nine articles) were implemented in middle school classrooms, and five were implemented in preschool classrooms (10.4%). A majority of the cases reviewed (79.2%) were implemented with students in general education classrooms, while only four cases (8.3%) were conducted in self-contained special education classrooms. The remaining six cases (12.5%) were implemented in residential treatment classrooms.

Research that has focused on promising interventions for students with EBD has
found that inappropriate behaviors such as aggression, disruptive classroom behavior, social withdrawal, and noncompliance have successfully been addressed with practices such as positive and negative reinforcement, behavioral momentum, group-oriented contingencies, and continuous monitoring of student performance (Landrum et al., 2003). Since tootling includes several of these components, this intervention is likely to be effective when used with students exhibiting behavior difficulties, just as the PPR studies have been.

Pilot study. In order to test the notion that tootling can be effective when used with students exhibiting behavior difficulties, a pilot study was conducted in which a tootling intervention was implemented in one special education classroom (Hilt-Panahon, Ray, & Panahon, 2018). Students were in fifth and sixth grade and all received special education services under the category EBD. One student also had an Autism Spectrum Disorder (ASD) diagnosis and several medical diagnoses.

An A-B-A-B design with 15-minute observations was used to examine the effects of tootling on students’ on-task, disruptive, and prosocial behaviors. On-task behavior was measured using a 10-second momentary time sampling technique, while disruptive and prosocial behaviors were measured using partial interval recording. During the initial baseline phase, the special education teacher conducted business as usual as she taught math lessons. Researchers observed the students’ on-task, disruptive, and prosocial behaviors. Following baseline, two 15-minute training sessions were completed in which the tootling procedures were introduced and students were trained. Students had the opportunity to provide verbal examples of prosocial behaviors and to practice “tootling,”
or reporting their peers’ prosocial behaviors. Upon completing training, the first tootling phase was implemented. During this phase, students were able to tootle throughout the time they were in the special education teacher’s classroom. At the beginning of each math lesson, the teacher read aloud the previous day’s tootles. Praise was given for appropriate tootles and corrective feedback was given for tootles that did not meet the criteria. Researchers observed students during the math lesson and measured on-task, disruptive, and prosocial behavior again. Using a dry erase poster of a thermometer, the students’ progress towards their class goal was updated once the teacher read and counted the appropriate tootles. Once the class reached their goal of 10 tootles, the tootles count was reset to zero and the next class goal and reward was decided by the students and teacher. Following the first intervention phase, a return to baseline was implemented in which the students were told that they would not be tootling at that time. Once again, on-task, disruptive, and prosocial behaviors were measured. Finally, tootling procedures were implemented again and behaviors were measured.

Results showed that tootling can be effective at increasing on-task behavior in an EBD classroom. However, disruptive behaviors did not appear to decrease and prosocial behaviors did not appear to increase during the intervention. It should be noted that there were confounding variables present in the study. For instance, when the researchers entered the second baseline phase, the tootling materials (i.e., tootling container, tootle slips, dry erase thermometer) were not put away. These items may have acted as a prompt for the students to continue tootling. In addition, the sample size of this study was small and a single classroom from a rural community was used. In addition, the number of
students present in the classroom each day was inconsistent due to absences, new students, transfers to other settings, and students choosing not to come to class. Thus, future studies are needed to confirm external validity.

**Current Study**

Although several studies have examined tootling’s effectiveness, only six articles that have implemented a tootling intervention have been published in research journals. The evidence supporting the components of tootling (i.e., peer monitoring, interdependent group contingency, publicly posted feedback) have been proven to be effective, yet there remains a gap in the literature. Future research should examine the effectiveness of tootling across various ages, grade and developmental levels, and cognitive abilities of students. In fact, the research surrounding tootling within special education classrooms is nonexistent. Although some studies (e.g., Cihak et al., 2009) have been conducted in inclusive classrooms, there are no published studies that have applied tootling in a special education classroom. Thus, the literature needs to focus on extending the examination of the intervention’s effectiveness into special education classrooms. Moreover, since students exhibiting behavior difficulties can potentially benefit from tootling, the effectiveness of the intervention with this population needs to be further examined.

Therefore, the purpose of this study was to evaluate the effectiveness of a tootling intervention with students in special education who exhibit behavior difficulties. This study sought to answer four main research questions. First, is a tootling intervention effective in increasing on-task behavior with a sample of students in special education
exhibiting behavioral difficulties? Second, is a tootling intervention effective in
decreasing disruptive behavior with a sample of students in special education exhibiting
behavioral difficulties? Third, is a tootling intervention effective in increasing prosocial
behavior with a sample of students in special education exhibiting behavioral difficulties?
Fourth, will special education teachers find a tootling intervention acceptable and
effective to use with their students?

Four hypotheses were proposed in this study. First, it was hypothesized that a
tootling intervention would be effective in increasing on-task behavior with a sample of
students who exhibit behavioral difficulties in special education classrooms. Second, it
was hypothesized that the tootling intervention would result in decreases in disruptive
behavior. The third hypothesis posited that the tootling intervention would increase
prosocial behavior. These hypotheses are consistent with the aforementioned results of
the effectiveness of PPR and tootling studies completed with students in general
education. Finally, it was hypothesized that special education teachers would find the
tootling intervention acceptable and effective to use with their students.
Chapter 2

Method

Prior to the start of the study, approval to conduct this study was provided by Minnesota State University, Mankato’s Institutional Review Board (see Appendix A). This study also received approval from the participating school district and its administrators.

Participants and Setting

Students and their teachers from three special education classrooms in the same K-8 school served as participants for this study. The school is part of a rural school district located in the Upper Midwest section of the US. Classrooms were selected by inviting special education teachers who taught students at the elementary level to participate. Information about the study and its purpose were explained and teachers determined whether or not they wanted to take part in the study. Originally, one of the three classrooms identified for this study was located in a separate school in the same school district. However, due to limited responsiveness and availability of the classroom teacher, a third classroom at the same elementary-middle school as the other two classrooms was identified. Parental consent was obtained for all 11 students across the three classrooms. See Appendix B for a copy of the consent form. Inclusionary criteria for student participants were: (a) the student was in second, third, fourth, or fifth grade and (b) the student had an Individualized Education Plan (IEP) that includes one or more behavioral goals. One of the students in Classroom A was excluded from data collection because she did not meet the grade cutoff established for the study. To minimize any
disruption to the teacher’s schedule and the class’ routine, she participated in the tootling intervention but observation data were not collected on her behavior. Thus, 10 participants were included in the study and observed throughout baseline and intervention conditions.

Classroom A was comprised of five Hispanic students (four males, one female). Four of the five students participated in the study. One student, the female mentioned in the previous paragraph, was not included in the classwide data collection because she did not meet the grade cutoff. Two participants received special education services under the category of Specific Learning Disability (SLD), another participant received special education services under the category Autism Spectrum Disorder (ASD), and one under Developmental Cognitive Disability (DCD): Mild-Moderate. Two of the four students were in second grade and the other two students were in third grade. Classroom A was a level one program, meaning students could spend up to 21% of their school day in the special education classroom. The teacher for Classroom A was a Caucasian female with a bachelor’s degree. She was in her first year of teaching. All observations took place during the students’ 30-minute social skills group led by the special education teacher.

Classroom B consisted of two third-grade Caucasian students (one male, one female), with one student who received special education services under the category Other Health Disabilities (OHD) and one who received services under Emotional or Behavioral Disorder (EBD). Classroom B, like Classroom A, was a level one program, so students spent up to 21% of their school day in the special education classroom. The teacher for Classroom B was a Caucasian female with a bachelor’s degree. She was
enrolled in a master’s degree program and completing her third year of teaching. All observations were conducted during the students’ 30-minute social skills group led by the special education teacher.

Classroom C was comprised of four students (three male, one female), with two students in fourth grade and two in fifth grade. The class consisted of three Caucasian students and one African American student. Three students received special education services under the category EBD while one received services under SLD. This was a level three program, meaning more than 60% of the students’ day was spent in the special education classroom. The teacher for Classroom C was a Caucasian female with a bachelor’s degree and some graduate school training. She had been teaching for 19 years. All observations occurred during the students’ 30-minute social skills group, which was conducted by one of the school counselors in conjunction with the special education teacher. The school counselor was a Caucasian male with four years of experience.

Materials

Tootling training. Each teacher was provided a script adapted from Lambert et al. (2015) for the student tootling training session (see Appendix C). During each training session, the primary investigator used a procedural integrity checklist comprised of 17 steps to ensure teachers were training the students correctly (see Appendix D).

Intervention implementation materials. Tootling checklists were completed daily by the classroom teachers (Appendix E). These checklists included the tootling procedures (e.g., providing students with the tootle cards, reading tootles at the start of each social skills group, tracking class progress towards their goal) in order to ensure the
intervention was implemented as intended. Teachers were asked to check the boxes next to each step as they completed them.

In addition, researchers completed a slightly modified checklist of tootling components on days that observations took place. This step was completed since self-report measures of treatment integrity can be inaccurate (Wickstrom, Jones, LaFleur, & Witt, 1998). Researchers completed a four-item checklist during observations that assessed the presence of intervention materials in the room including tootle cards, tootling container, and updated goal thermometer (Appendix F).

**Tootle cards.** The students used pre-made “tootle” cards to record observations of their peers’ prosocial behaviors within the special education classrooms (see Appendix G). Each card took up half of a sheet of 8x11 paper and was cut out before the study began. Students’ names were listed under the “who” and “for who” with check boxes next to each name. Examples of prosocial behaviors (i.e., answered a question, shared, helped) were listed under the “did what” column, as well as a blank line for students to write in their own observed prosocial behaviors. This column also had check boxes next to each behavior so students did not have to write a full tootle on their own if they did not want to.

**Tootle container.** All three classrooms had a large, clear container labeled *Tootles* near each of the teachers’ desks. The containers were kept in an easily accessible area of the classroom for students to submit their completed tootles. A dry erase poster with an image of a thermometer was displayed in the front of each classroom during the tootling phases to provide feedback to the students regarding the daily number of tootles their
peers reported, as well as the number of tootles required to reach their goals. Rewards were selected by the classroom teachers and students, and when students earned their reward upon reaching their collective goal, the primary investigator provided the reward the following day. Possible rewards discussed with the classes included: cupcakes, popcorn, extra recess time, and touch football.

**Data collection form.** Throughout baseline and intervention phases, researchers used a data collection form created for the study (see Appendix H). This form included the operational definitions of each dependent variable observed, as well as numbered intervals with boxes labeled for each behavior so observers could easily follow along with the 10-second intervals. A free interval timer application (i.e., Simple Repeat Timer) on a smart phone and headphones were also used. This app makes a sound indicating the beginning of each new interval to notify researchers when to observe behavior.

**Tootle log.** Finally, teachers used an 8x11 tootling log to keep track of the total number of appropriate tootles produced each day (see Appendix I). There were directions on the top of the log that asked the teacher to record the number of tootles students submitted each day after the tootles were reviewed. Each day and their respective date was listed in a table format, along with a line for teachers to indicate the current number of tootles the class had reached, as well as the current goal for number of tootles. There was also a checkbox next to the class goal to indicate whether the goal was reached that day.

**Social validity.** Following the completion of the study, the teachers and the school counselor completed a modified version of the Intervention Rating Profile-15
(IRP-15; Martens, Witt, Elliott, & Darveaux, 1985; see Appendix J). Modifications included wording items in the past tense (e.g., “would be” changed to “was”), replacing the word intervention with Tootling, and changing wording to reflect group behavior rather than a single child (Lambert et al., 2015). The IRP-15 is a rating scale used to assess various aspects of general acceptability of an intervention. The scale uses a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree). There are 15 items on the post-intervention scale, meaning overall scores range from 15 to 90, with higher scores indicating greater acceptability. Interventions that are rated above the cutoff score of 52.5 are considered to be acceptable (Von Brock & Elliott, 1987). The IRP-15 is reliable (Cronbach’s α = .98; Martens et al., 1985) and minor modifications to the scale have not been found to affect its psychometric properties (Freer & Watson, 1999).

**Dependent Variables**

**On-task behavior.** Students’ on-task behavior was the primary dependent variable and used to decide when phase changes should occur. On-task behavior was defined as a student being engaged (e.g., passively or actively) in an assigned activity. Examples included a student sitting in his or her seat, following along in a book, answering teacher-asked questions, sitting quietly while the teacher is talking, working independently at his or her desk, and raising his or her hand to ask a question. Non-examples included playing with items not related to the task, talking to peers when he or she is expected to be attending to the teacher or task, and putting his or her head on the desk.

**Disruptive behavior.** Disruptive behavior was a secondary dependent variable
and was recorded when the target student was engaged in any behavior that was distracting to the class. Examples included yelling, cursing, throwing objects, non-compliance, and aggression. Non-examples included inaudibly asking a peer for assistance on a task, doodling, daydreaming, looking out the window or around the room.

**Prosocial behavior.** Prosocial behavior was another secondary dependent variable. Prosocial behavior was recorded when the target student had a positive social interaction with another student. Prosocial behaviors were also indirectly measured by each teacher through a daily count of the number of tootles that met criteria (i.e., tootles that appropriately indicated “who,” “did what,” “for whom”). Examples included helping a student with his or her homework, answering a peer’s question, giving another student a compliment, playing with a peer, and working on an assignment together when it is allowed. Non-examples included answering a teacher’s question, obeying classroom rules, and giving a teacher a compliment.

**Research Design**

A multiple baseline design across three special education classrooms was used to determine the effectiveness of tootling for increasing on-task and prosocial behaviors, and decreasing disruptive behaviors. A multiple baseline design should be used when an intervention is associated with permanent change in behavior (i.e., if the dependent variables are unlikely to be reversed after responding to the initial intervention; Kratochwill et al., 2010). This design offers more valid causal inferences by staggering the intervention across time. In addition, comparisons are made both between and within the data series for added phase change interpretations.
At least three data points were in each baseline and intervention phase (Kratochwill et al., 2013). Once Classroom A’s on-task behavior data were stable for baseline, the tootling intervention was implemented. Classrooms B and C remained in the baseline until a treatment effect was demonstrated in the first classroom. Next, tootling procedures were implemented in Classroom B while Classroom C continued in baseline. Finally, the tootling intervention was implemented in Classroom C after a treatment effect was demonstrated in Classroom B.

Observations were conducted during 30-minute sessions. Observers collected data from an unobtrusive location in the classroom to avoid distracting students. A 10-second momentary time sampling recording procedure was used to measure students’ on-task behavior. When using momentary time sampling, a behavior is marked as either present or absent during the moment that a timed interval begins or ends (Hintze, Volpe, & Shapiro, 2002). For this study, behavior was observed at the beginning of each interval. Throughout the remaining seconds of the interval, the students’ on-task behavior was not evaluated. Momentary time sampling provides the least biased estimate of behavior as it actually occurs and thus was chosen for measuring the primary dependent variable (i.e., on-task behavior) (Johnston & Pennypacker, 2009).

Disruptive and prosocial behaviors were measured using partial interval recording. Partial interval recording is a form of interval recording in which the behavior is recorded as having occurred if at least one instance of the target behavior is observed during any part of the interval (Johnston & Pennypacker, 2009). Partial interval recording is useful when observing behaviors that occur at relatively low rates or behaviors that are
somewhat inconsistent in duration, thus making it a useful method for measuring disruptive and prosocial behaviors (Hintze et al., 2002). During data collection, an interval timer application was used on researchers’ phones with a set of headphones to notify observers of the start of each interval.

Observations occurred round robin style in each classroom for 30-minutes during morning social skills group, two to four days per week. This observation procedure creates grouped data and involves a discontinuous picture of any one child’s behavior during the session (Johnston & Pennypacker, 2009). Researchers randomly selected a student prior to the start of each observation session. Researchers began observing the student at the beginning of the 10-second interval and recorded whether the student was on-task. During the remaining part of each interval, researchers noted if the target student engaged in disruptive and/or prosocial behavior. Upon hearing the interval cue, researchers observed the student to the right of the previously observed student using the procedures previously mentioned (i.e., round robin). Once all students in the classroom had been observed, the rotation restarted until all intervals in the 30-minute observation period had been completed or the social skills group came to an end. The order of students was pre-established and noted on the data collection form. By doing so, researchers did not lose track of which student they were observing during an interval, even when a student did not remain seated during observation periods. Consistent with published tootling studies, data were reported as the classwide percentage of intervals of occurrence for each dependent variable (e.g., Lambert et al., 2015; Lum et al., 2017). This was calculated by dividing the total number of intervals of occurrence by the total
number of intervals in the observation, and then multiplying the result by 100.

**Procedures**

**Researcher training.** An invitation to assist with the data collection for the study was emailed to graduate students in a school psychology doctoral program and undergraduate research assistants on one of the doctoral program’s research teams. Two individuals responded who were both graduate students in the school psychology doctoral program. Observers were not completely blinded to the purpose of the study or proposed hypotheses. These observers were aware of the pilot study completed before the current study and were familiar with the topic of tootling from previous coursework and research projects conducted on the same research team. However, availability of other researchers to assist with data collection was limited and thus these individuals were selected as observers.

The primary investigator and two graduate students collected data throughout the course of this study. The primary investigator led two 30-minute training sessions for the data collectors to learn the operational definitions of the target behaviors and practice the observation procedures. Researchers were provided a sheet with the definitions of the target behaviors as well as the observation procedures (e.g., 10-second momentary time sampling for on-task behavior, round robin method). Observers were required to attain a minimum of 90% agreement during training with and without the primary investigator also observing. A YouTube clip of a classroom lesson was used for training purposes and the observation form used during the study was used during training as well. Each observer’s data were compared to an answer key to measure interobserver agreement.
(IOA). IOA was calculated on a point-by-point basis for each dependent variable by dividing the total number of agreements by the combined number of agreement and disagreements (i.e., total intervals observed), and then multiplied by 100. The mean IOA for training observation sessions was 97.5% for on-task behavior, 100% for disruptive behavior, and 99% for prosocial behavior.

**Baseline.** Baseline sessions occurred during a predetermined social skills period held in the morning. Classroom teachers conducted business as usual. Researchers observed on-task, disruptive, and prosocial behaviors using the previously described observation procedures. The decision to begin tootling in Classroom A was based on the stability of baseline data.

**Student introduction and training.** Prior to the implementation of tootling procedures, the primary investigator provided teachers with all necessary intervention materials (e.g., pre-made tootle cards, goal thermometer, tootle container). At this time, teachers were also given a script adapted from Lambert et al. (2015) to help guide them through the training session. Before reading the script to students for training, the primary investigator read through the script with each teacher to ensure understanding of each step. To train students, one 20-minute session was led by each classroom teacher followed by a practice session.

During the training, the primary investigator used an integrity checklist to ensure teachers were properly trained to conduct the tootling training for students. In addition, a procedural integrity checklist adapted from Lum (2017) was completed by the primary investigator to assess whether teachers properly trained students on the tootling
procedures. This checklist included 17 steps such as, “give appropriate and inappropriate examples of tootles,” and “have students practice writing a tootle.” On average, teachers successfully completed 98% of the steps from the checklist during student training. Interobserver agreement (IOA) was also obtained for 33% (one of three classrooms) of the training sessions with teachers as in Lum et al. (2017). IOA for the training session was 100%.

Students were provided with examples and non-examples of classmates’ helping behaviors and were taught the tootling procedures. The students were then asked to distinguish a tootle from a tattle using examples provided by the classroom teacher. For example, “If I said John held the door open for Andy, is that an example of a tootle or a tattle?” Following the 20-minute training session, each teacher verbally provided three short vignettes for students, one at a time. After reading the first scenario, the teacher demonstrated how to write an appropriate tootle.

Students were then asked to complete a tootle on their own following the second and third vignettes (e.g., “Mary looked confused during the math lesson. Ben offered to help Mary. How would I write a tootle if I saw this happen? Go ahead and fill out your tootle cards.”). This provided students with an opportunity to write their own examples of tootles to demonstrate understanding. The examples were collected and praise and corrective feedback were provided by the teacher and the primary researcher. Each student was required to write at least one tootle successfully in order to ensure understanding of the procedures. Additional vignette ideas were provided to the teacher in Classroom A to assist students in successfully writing a tootle.
The purpose of the tootling jar and the goal thermometer was explained to the students. At the end of the training and practice sessions, each class brainstormed ideas with their teacher for possible group rewards they would like to earn for meeting their tootling goals. Examples of rewards included additional recess time, a cookie party, or a pizza party. An appropriate number of tootles was agreed upon for the first, second, and third goal reached in each classroom, with a higher number of tootles yielding a larger reward. Although student training is an important part of the tootling intervention, data (i.e., on-task, disruptive, and prosocial behaviors) were not collected until tootling procedures were implemented.

**Tootling.** The implementation of tootling procedures began the day after students had been trained. When it was time for each classroom to begin intervention, the classroom teacher put blank tootles next to the tootling container so students were able to record instances of prosocial peer behaviors throughout the time they were in the classroom. Tootling instructions were briefly reviewed by the teacher and the students were encouraged to write a tootle if they observed a classmate engaging in prosocial behavior. Students were reminded to submit completed tootles to the classroom tootling container each day.

At the beginning of each social skills group (i.e., tootling session), the classroom teacher read the completed tootles aloud and counted the number of appropriately reported tootles towards the class goal. The number of tootles produced the previous day were added to the feedback chart (i.e., dry erase thermometer) so students could see their progress towards their cumulative goal. If the students reached their goal, they earned
their reward the next day. Although previous studies reset the number of tootles to zero once the class reached their goal, the primary investigator chose to allow the number of tootles to continue to build in order to increase student buy-in and encourage the class to continue working together towards a larger reward. Across all classrooms, the initial goal was set at five tootles by each classroom teacher in collaboration with the researcher. The initial goal was set to allow students to earn the reward quickly and to increase motivation to write tootles. The second and third goals for each classroom were set at ten and fifteen cumulative tootles, respectively.

As each classroom moved into the intervention phase, tootling checklists were completed by teachers daily to ensure the tootling procedures were followed correctly and the intervention was implemented as intended. All teachers reported completing 100% of the daily steps, however, students produced only a small number of tootles during intervention sessions.

When researchers were present to observe, the modified checklist of tootling components was used to assess the presence of intervention materials and ensure teachers followed the tootling procedures (e.g., reviewing tootles, updating progress towards the class goal). On average, 94% of all procedures were completed.

**Interobserver Agreement and Procedural Integrity**

Interobserver agreement (IOA) was calculated for at least 30% of total observation sessions in each classroom. IOA is a measure of objectivity in which a high level of agreement ensures accuracy of the data (Bryington, Palmer, & Watkins, 2002). During these sessions, two data collectors observed students’ behavior. IOA was
calculated separately for each dependent variable (i.e., on-task, disruptive, and prosocial behavior) as in Lambert et al. (2015) and Lum et al. (2017). IOA was reported as the total agreement of occurrence and nonoccurrence of behavior. The total number of agreements was divided by the combined number of agreement and disagreements, and then multiplied by 100.

Classroom A’s IOA was obtained for 37.5% of total sessions across baseline and the tootling intervention phase. IOA for on-task behavior in Classroom A averaged 98.2% (range = 97-100%) across both phases, disruptive behavior averaged 99.2% (range = 98-100%) across both phases, and prosocial behavior averaged 99.5% (range = 99-100%) across both phases. Total IOA for all behaviors measured across baseline and intervention phases in Classroom A averaged 98.9% (range = 97-100%).

IOA for Classroom B was obtained for 35.7% of total sessions observed. IOA for on-task behavior in Classroom B averaged 98% (range = 97-100%) across both phases, disruptive behavior averaged 99.2% (range = 98-100%) across both phases, and prosocial behavior averaged 98.4% (range = 97-100%) across both phases. Total IOA for all behaviors measured across baseline and intervention phases in Classroom B averaged 98.5% (range = 97-100%).

Classroom C’s IOA was obtained for 35.3% of total observation sessions. IOA for on-task behavior in Classroom A averaged 98.2% (range = 97-100%) across both phases, disruptive behavior averaged 99% (range = 97-100%) across both phases, and prosocial behavior averaged 98.8% (range = 96-100%) across both phases. Total IOA for all behaviors across both phases averaged 98.7% (range = 96-100%).
Data Analysis

**Visual analysis.** Visual analysis was the primary method of analysis used to determine phase changes. Following each observation session, data were analyzed for changes in level, trends of behavior across baseline and tootling conditions, variability, and immediacy of effect after implementing the tootling intervention (Horner et al., 2005). In addition, visual analysis was used as one way to determine the overall effectiveness of the tootling intervention in increasing students’ on-task and prosocial behaviors, and in decreasing disruptive behaviors.

**Percentage of data points exceeding the median.** Percentage of data points exceeding the median of the baseline phase (PEM; Ma, 2006) was used to calculate effect sizes and to supplement visual analyses to gain a more thorough understanding of the effects of the tootling intervention. PEM is conceptualized as the percentage of intervention data points that are above a median slope plotted based on baseline data and extended to the intervention phase (Rakap, 2015). To calculate PEM, a median line is first drawn for the baseline data. Next, the number of intervention data points above the median line are added and divided by the total number of data points in the intervention phase. Finally, this value is multiplied by 100 to get the percentage of data points exceeding the median. The effect size for the full design was also computed by averaging all PEM scores together (Rakap, 2015).

PEM scores can range between 0% (when all intervention data points are below the median line) and 100% (when all intervention data points are above the median line). However, when calculating PEM for behaviors one is expecting to decrease, it is
desirable for intervention data points to be below, rather than above, the baseline median line. For these behaviors, data points below the baseline median line indicate that the intervention was effective in decreasing the target behavior. Although there are no benchmarks specific to interpreting effect sizes calculated using PEM, other research (e.g., Ma, 2006) recommends using criteria proposed by Scruggs, Mastropieri, and Casto (1987). Thus, the benchmarks to interpret PEM scores were as follows: a PEM score of 90% or higher indicates a highly effective intervention, a PEM score between 70% and 90% indicates a moderately effective intervention, a PEM score between 50% and 70% indicates a questionable intervention, and a PEM score of 50% or lower indicates an ineffective intervention.

There have been no reports of situations where PEM could not be used and PEM is particularly useful when there is not a trend in baseline data (Parker & Hagan-Burke, 2007). Additionally, PEM is sensitive to the presence of autocorrelation and yields similar values regardless of the degree of serial dependence. PEM also corrects for sensitivity to floor or ceiling effects that are sometimes seen in other visual effect size indices such as Percentage of Non-Overlapping Data (PND) (Brossart, Laird, & Armstrong, 2018; Manolov, Solanas, & Leiva, 2010).

PND is conceptualized as the percentage of intervention phase data points that exceed the highest (for behavior increase studies) or lowest (for behavior reduction studies) data point in the baseline phase (Rakap, 2015). PND scores range from 0%, meaning the highest baseline data point exceeds all intervention data points, to 100%, meaning all intervention data points exceed the highest data point in baseline (Rakap,
2015). PND has been criticized for ignoring all but one data point in phase A and led to the proposal of Percentage of all Non-Overlapping Data (PAND) and PEM (Manolov et al., 2010).

PAND was introduced as an alternative to PND for larger data sets. PAND takes into account all data points and counts the minimum number of measurements that must be removed in order to obtain a series of data points with no overlap (Manolov et al., 2010). PAND improves with unbalanced phase lengths, while PEM is less affected by the amount of data points in the series (Manolov et al., 2010). This makes PEM an appealing option for calculating effect sizes in practical settings such as schools.
Chapter 3

Results

Tootles

Participants in the three classrooms all tootled at a low rate throughout the intervention phase. Skinner et al. (2000) and Cashwell et al. (2001) demonstrated that students in younger grades could be taught to observe and report peers’ prosocial behaviors. However, it is possible that this notion was more applicable to students in general education since that was the setting where tootling’s effectiveness had previously been examined.

Classroom A produced a total of four tootles throughout the time they were in intervention. This low number of tootles meant Classroom A did not meet their goal to earn a reward throughout the entire study. The students in Classroom B provided a total of eight tootles. Therefore, Classroom B met their first goal of five tootles after four days of the intervention and earned one reward (i.e., freeze pops). The class came close to earning the second goal of ten cumulative tootles, but the teacher in Classroom B ended the intervention prematurely due to frequent changes in students’ schedules associated with the end of the school year. Lastly, Classroom C produced a total of six tootles. This classroom met their initial goal of five tootles on the fifth day of intervention and earned time to play outside. It is possible that the results of this study would have been more robust if the students had provided more tootles which would have resulted in earning additional reinforcement from their class rewards.

Classroom Observation Data
Results of classwide direct observation of on-task, disruptive, and prosocial behaviors are presented in Figure 1 (see Appendix K). Data are graphed as percentages of intervals in which targeted behaviors were observed during baseline and tootling intervention conditions across the three classrooms. PEM calculations for target behaviors in each classroom can be found in Table 1 (see Appendix L).

**Classroom A.** During baseline, on-task behavior for Classroom A remained stable with a mean of 84% ($SD = 2.50$) during observed intervals (range = 81-87%). Due to the stability of baseline data compared to that of Classroom B and Classroom C, the tootling intervention was first introduced in Classroom A. On-task behavior immediately increased and remained at a high level throughout the intervention phase with little variability. For the intervention phase, Classroom A’s mean on-task behavior increased to 98% ($SD = 1.83$) of observed intervals with a range from 93-99%. There were no overlapping data points between baseline and intervention phases, and performance was stable during intervention. Although Classroom A’s on-task behavior immediately increased once tootling was implemented, on-task behavior in Classroom B and Classroom C did not increase and continued to be variable while in baseline. All intervention data points for Classroom A were above the baseline median line, indicating the intervention was very effective in increasing on-task behavior (PEM = 100%).

Disruptive behavior for Classroom A was also stable during the baseline condition with a mean of 8% ($SD = 1.00$) during observed intervals (range = 6-8%). Disruptive behavior was already relatively low when the intervention started. However, when the tootling intervention was implemented, disruptive behavior immediately
decreased and remained at or near zero levels with no observable trend. All intervention data points fell below the baseline median line with zero overlapping data points between intervention and baseline conditions. Therefore, since the intent of the intervention was to decrease disruptive behavior, PEM for this target behavior in Classroom A was 100%.

Low levels of prosocial behavior for Classroom A were displayed during the baseline phase ($M = 2\%, SD = 1.26$, range = 1-4%). Prosocial behavior initially remained low following the implementation of the tootling intervention. However, prosocial behavior became slightly more variable during intervention and increased after the fourth intervention session ($M = 3\%, SD = 2.58$, range = 0-8%). Fifty percent of the intervention data points exceeded the baseline median line and six intervention data points overlapped with baseline data, indicating the intervention was questionable at increasing prosocial behavior.

**Classroom B.** On-task behavior for Classroom B during baseline was highly variable with a mean of 90% ($SD = 5.49$) during observed intervals (range = 83-96%). During the last four sessions, a decreasing trend was observed for on-task behavior and thus it was decided that the classroom should begin the tootling phase. Following the implementation of tootling procedures, on-task behavior increased to a mean of 98% ($SD = 2.32$) of observed intervals (range = 94-100%) and remained stable and at a high level throughout the intervention phase. There was little variability during intervention, with only one data point overlapping baseline data and 100% of intervention data points exceeding the baseline median. While Classroom B showed an increase in on-task behavior, Classroom C continued to show variable levels of on-task behavior as they
remained in baseline.

Disruptive behavior for Classroom B was variable (range = 2-15%) with a mean of 9% ($SD = 4.47$) of observed intervals during baseline. Following the implementation of tootling procedures, disruptive behavior decreased immediately and remained stable and at a low level with a mean of 0.5% ($SD = 0.55$) of observed intervals (range = 0-1%). All intervention data points fell below the baseline median (PEM = 100%) with zero overlapping data points between intervention and baseline conditions.

Prosocial behavior for Classroom B was stable and remained near zero-levels ($M = 1\%, SD = 1.07$, range = 0-3%) throughout baseline. Prosocial behavior immediately increased following the implementation of tootling procedures ($M = 5\%, SD = 2.68$, range = 2-8%), with all intervention data points exceeding the baseline median (PEM = 100%). Two of the six intervention data points overlapped with baseline data, indicating the intervention was effective in increasing prosocial behavior for Classroom B.

**Classroom C.** During baseline, on-task behavior for Classroom C was variable and had a mean of 83% ($SD = 8.73$) during observed intervals (range = 67-94%). There was an increasing trend at the beginning of intervention, followed by a decreasing trend before the data became more stable. Following the implementation of tootling, on-task behavior increased to a mean of 98% ($SD = 1.10$) of observed intervals (range = 97-100%) and remained high and stable throughout the intervention phase with little variability. There was a slight increasing trend at the end of the intervention. No data points during intervention overlapped with baseline data, and all data points during intervention exceeded the baseline median line (PEM = 100%), indicating the
intervention was highly effective at increasing on-task behavior for Classroom C.

Disruptive behavior for Classroom C had a mean of 6% ($SD = 5.09$) during observed intervals of baseline (range = 0-14%) and showed a slight decreasing trend. Following the tootling implementation, disruptive behavior continued to decrease and remained low and stable with a mean of 1% ($SD = 0.55$) of observed intervals (range = 0-1%). Three intervention data points during overlapped with baseline data and all intervention data points fell below the baseline median line (PEM = 100%). This indicates that the tootling intervention was highly effective in decreasing disruptive behavior for Classroom B.

Prosocial behavior for Classroom C was slightly variable and low ($M = 1\%$, $SD = 1.21$, range = 0-4%) during the baseline phase with no observed trend. Prosocial behavior remained at low levels following the implementation of tootling procedures ($M = 1\%$, $SD = 1.51$, range = 0-4%), with 67% of intervention data points exceeding the baseline median line and all data points overlapping with baseline data. This indicates the intervention’s effects were questionable for increasing prosocial behavior in Classroom C.

The intervention’s overall effectiveness was calculated by averaging all of the PEMs across each behavior in each classroom (Rakap, 2015). Results indicate tootling to be a highly effective intervention in increasing on-task behavior and decreasing disruptive behavior in a sample of special education classrooms with students who have one or more behavioral goals on their IEP (Overall PEM = 90.7%). Tootling was not as effective at increasing prosocial behavior across the three classrooms, as only Classroom
B showed an increase in prosocial behavior during the intervention phase compared to baseline.

**Social Validity**

Participating teachers and the school counselor completed a modified version of the IRP-15 following the completion of the study to assess the social validity of the tootling intervention. The teacher in Classroom A rated all 15 items as either *slightly agree* (i.e., 4) or *agree* (i.e., 5). The teacher in Classroom B rated 13 of the 15 items as either *slightly agree* (i.e., 4) or *agree* (i.e., 5), with two items rated as *slightly disagree* (i.e., 3). Classroom B’s teacher indicated slight disagreement with the item, “The tootling intervention would be appropriate for a variety of children,” as well as the item, “The tootling intervention was a good way to handle these students’ needs.” The teacher in Classroom C rated all but two items as either *slightly agree* (i.e., 4) or *agree* (i.e., 5). The teacher rated one item (i.e., “The students’ needs were severe enough to warrant use of the tootling intervention”) as *slightly disagree* (i.e., 3) and another (i.e., “The tootling intervention did not result in negative side effects for the students”) as *strongly agree* (i.e., 6). The school counselor from Classroom C rated the intervention the lowest, with scores ranging from *strongly disagree* (i.e., 1), to *agree* (i.e., 5). The counselor rated one item (i.e., “This intervention proved effective in supporting the students’ needs”) as *strongly disagree* (i.e., 1). However, the counselor indicated agreement with the items, “I would suggest the use of the tootling intervention to other teachers,” as well as the item, “Most teachers would find the tootling intervention suitable for the needs of their students.”
Overall effectiveness was calculated by adding the values of each item for a total score. Total overall scores by the special education teachers in Classrooms A, B, and C suggest high acceptability of the intervention, with scores of 63, 60, and 70, respectively. The school counselor rated the intervention lower than the teachers, with an overall score of 52 out of 90. Since interventions that are rated above the cutoff score of 52.5 are considered to be acceptable, the counselor was the only individual who rated the intervention as unacceptable (Von Brock & Elliott, 1987).
Chapter 4

Discussion

The purpose of the study was to evaluate the effectiveness of a tootling intervention with students who exhibit behavior difficulties in a special education setting. Therefore, the current study extends the existing literature on tootling by implementing the intervention in special education classrooms. Using a multiple baseline design across classrooms, this study investigated if tootling was effective in increasing students’ on-task behavior, decreasing students’ disruptive behavior, and increasing students’ prosocial behavior. In addition, this study examined teacher acceptability of the tootling intervention.

On-Task Behavior

It was hypothesized that students would increase their on-task behavior while in the tootling intervention phase in comparison to baseline. This hypothesis was supported as on-task behavior in all three special education classrooms increased after tootling was implemented. In Classroom A, on-task behavior increased from a mean of 84% of intervals observed during baseline to 98% of intervals observed during intervention. In Classroom B, the mean on-task behavior increased from 90% of intervals observed during baseline to 98% of observed intervals during the tootling. In Classroom C, on-task behavior increased from a baseline mean of 83% of intervals observed to a mean of 98% of intervals observed during the tootling. In addition, all intervention data points were above the baseline median line (PEM = 100%) for all three classrooms. The replication of effects provides evidence that tootling is an effective intervention for increasing students’
on-task behavior in a special education setting. These findings are supported by previous studies that have shown increases in academically engaged behavior during a tootling intervention in general education settings (e.g., Lambert et al., 2015; Lum et al., 2017). The increases in on-task behavior seen within this study support the benefits of tootling. More specifically, when students are taught to be aware of their own behavior, they may become more likely to improve their behavior in order to provide students with the opportunity to tootle on them. This change allows the class as a whole to get closer to reaching their tootling goal. Thus, the increases in on-task behavior could be due to the group contingency that was used in an effort to focus students’ attention on desired behaviors and to foster cooperation as the class works together toward earning a common goal (Skinner et al., 2000).

**Disruptive Behavior**

The second hypothesis that the tootling intervention would be effective in decreasing disruptive behavior across classrooms when compared to baseline levels of disruptive behavior was supported as well. As discussed in the Results, all three classrooms demonstrated decreases in disruptive behavior following the implementation of the tootling intervention. This finding is similar to other studies that have used tootling to decrease inappropriate behaviors (e.g., Cihak et al., 2009; Lambert et al., 2015). Decreases in disruptive behavior may be attributed to the interdependent group contingency (i.e., the class working together to reach their goal), because research shows that group-oriented contingency systems can be extremely effective in reducing class levels of disruptive behavior (Gresham & Gresham, 1982). Further, students who are
engaging in on-task behaviors will not be able to engage in disruptive behavior at the same time. That is, the behaviors are incompatible. Since tootling proved to increase levels of on-task behavior, it is not surprising that disruptive behavior decreased.

Classroom B showed the largest decrease in disruptive behavior, with a decrease from a mean of 9% of intervals observed during baseline to an average of 0.5% during the tootling intervention. All intervention data points were below the baseline median. The smaller class size may have contributed to the significant decrease in disruptive behavior. For example, with only two students in the classroom, the students may have been able to motivate each other. In addition, near the end of the study, students often played board games with one another, so the opportunity to engage in disruptive behavior decreased. Classrooms A decreased their average disruptive behavior from 8% during baseline to nearly zero levels ($M = 0.17\%$) during intervention. Classroom C also decreased their average disruptive behavior from 6% during baseline to 1% during intervention. This repeated decrease in disruptive behavior across special education classrooms indicates that the tootling intervention was effective in decreasing students’ disruptive behavior. This finding is similar to past research that showed peer-mediated behavioral interventions were moderately effective at positively influencing the behavior of other students, as measured by social skills, disruptive behavior, and academic engagement (e.g., Dart et al., 2014). However, Cihak et al. (2009) noted that it is not clear if decreases in disruptive behavior were due to the tootling intervention itself, the group contingency, or a combination of both tootling and the contingency. This study combined tootling procedures with an interdependent group contingency, but because of the lack of tootles
produced across classrooms, it cannot be concluded that tootling alone was effective in decreasing disruptive behavior. A future component analysis of the tootling procedures, interdependent group contingency, publicly posted feedback, etc. could help researchers understand the parts of tootling that might be more effective in changing behaviors.

**Prosocial Behavior**

In addition, it was hypothesized that the tootling intervention would be effective in increasing prosocial behaviors across classrooms in comparison to baseline. This hypothesis was only supported in one of the three special education classrooms (i.e., Classroom B) exposed to the tootling intervention. In Classroom B, prosocial behavior increased from a mean of 1% of intervals observed in baseline to a mean of 5% of intervals observed during intervention. All intervention data points exceeded the baseline median (PEM = 100%), indicating tootling was highly effective in increasing prosocial behavior, as in earlier studies such as Skinner et al. 2000). The students in Classroom B played board games and card games during the majority of the observations that took place during tootling intervention phase. This may have contributed to the increase in prosocial behavior observed because the students often played on the same team against the special education teacher or a paraprofessional. The students were given more opportunities to engage in prosocial behaviors since they worked together to reach a common goal (e.g., winning a game). If the teacher had continued the intervention until the end of the school year, students would have had more opportunity to tootle and may have reached the second and third goal of ten and fifteen tootles, respectively. As a result, prosocial behavior may have further increased.
In Classroom A, prosocial behavior for Classroom A did not increase during intervention with a mean of 3% of intervals observed with half of the intervention data points exceeded the baseline median line (PEM = 50%). This lack of improvement may have been due to the lower ability of students in Classroom A. There are no published studies that have implemented tootling with students who have more severe disabilities such as DCD. One of the students in Classroom A reported having trouble observing peers’ prosocial behaviors despite successfully writing tootles during training. Classroom A did not reach the initial goal of five tootles. By the end of the study, Classroom A had produced four successful tootles after seventeen days of intervention. Thus, this classroom did not earn any group rewards during the intervention. It is possible that the lack of rewards earned by Classroom A may have contributed to the lack of tootles produced.

In Classroom C, prosocial behavior during intervention remained at low levels with a mean of 1% and a majority of intervention data points exceeded the baseline median line (PEM = 67%). Given the lack of opportunity to engage in prosocial behaviors during social skills lessons, Classroom C remained at low levels of prosocial behavior during the tootling intervention. Classroom C met their goal of five tootles on the fifth day of intervention and earned outside time during which they played touch football. During the remaining days of the intervention and school year, the students in Classroom C only produced one more tootle. This finding might have occurred because students with EBD tend to display lower rates of prosocial behavior compared to students without behavior difficulties. The findings from Classrooms A and C question the
effectiveness of tootling to increase the prosocial behavior of students in special education.

During the tootling intervention, Classroom B displayed the greatest improvement in prosocial behavior, Classroom A showed minimal improvement, while Classroom C’s average did not change. These differences may have been due to the lack of tootles written or due to the structure of the social skills group. Many of the observations during Classroom C’s social skills group consisted of “checking in” with the school counselor and thus peer interactions were limited during those times. In addition, low levels of prosocial behavior may be due to the behavioral difficulties exhibited by students. By definition, students with EBD, compared to students without behavior difficulties, tend to display lower rates of positive behavior (Landrum et al., 2003). With the absence of prosocial peers in special education classrooms designed for students with emotional and behavioral difficulties, the value of using peer-mediated interventions in which reinforcement is provided for positive social behaviors cannot be overstated (Hofstadter et al., 2009).

The increase in prosocial behavior in Classroom B shows that the tootling intervention can be effective in increasing percentage of prosocial behavior. Research has shown that awareness and acknowledgment of appropriate behaviors increases the probability of students engaging in these behaviors (Cashwell et al., 2001). Thus, since tootling stresses the importance of being aware and acknowledging peers’ prosocial behaviors, it is not surprising that the intervention is effective in increasing appropriate behaviors among students. Results of this study are similar to previous studies that have
investigated tootling’s effects on prosocial behaviors and have shown increases in student-helping-student behavior (e.g., Cashwell, Skinner, & Smith, 2001; Skinner et al., 2000). However, the current study extends the literature by not relying solely on the number of tootles produced by each classroom to determine levels of prosocial behavior, but also by using direct observation.

**Social Validity**

Lastly, it was hypothesized that special education teachers would find the tootling intervention acceptable and effective to use with their students. This hypothesis was supported by all three teachers. Classroom A’s teacher noted in the comments that her classroom has lower achieving students and thus it was harder for them to understand the concept. She suggested additional modeling and examples or instruction to get a larger impact out of the intervention. Anecdotal reports from Classroom B’s teacher indicated that the intervention may have been more effective with more students. In addition, Classroom C’s teacher commented that with a longer intervention the students would likely have shown more improvement. Lastly, only the school counselor in Classroom C endorsed a score that was slightly an acceptable level. The school counselor felt the intervention was not effective in supporting students’ needs, students’ needs may not have been severe enough to warrant use of the intervention, or the intervention may not be appropriate for a variety of children.

It is important to note that on-task behavior increased across all three classrooms and disruptive behavior decreased across all classrooms. Teachers who rated the intervention as acceptable may have felt that the tootling intervention provided them with
more time to teach social skills since on-task behavior increased and disruptive behavior decreased.

**Practical Implications**

Results from this study provide additional support for tootling as an effective intervention for increasing on-task behavior, decreasing disruptive behavior, and increasing prosocial behavior. In addition, this study proves that tootling can be adapted for use in special education classrooms and with students who are exhibiting behavioral difficulties. PPR and tootling have been implemented in a variety of settings including high school settings (e.g., Lum et al., 2017) and residential treatment settings (Jones et al., 2000). Students who are exhibiting social, emotional, or behavioral difficulties may benefit from the tootling intervention even more than their peers who spend all of their time in the general education classroom. Some studies (e.g., Cihak et al., 2009) have examined tootling’s effectiveness within inclusive classrooms, but more studies are needed to investigate whether tootling can be used with a variety of problematic behaviors across various ages and disabilities in special education.

Another implication of this study is that providing training to educators and other school staff on the procedures of tootling and its potential effectiveness may assist schools in managing student behavior and improving overall school climate. Effective school-based interventions are crucial to improving school climates, and tootling aligns with other strategies that have been used to promote positive school climates. In order to increase instances of prosocial behavior, schools must emphasize the importance of creating and promoting these positive environments (Lambert, 2014).
Similarly, based on the social validity results from this study, it is important for practitioners to consider the time and resources necessary to implement a tootling intervention. Educators may need support from their school psychologist in learning how to implement the intervention with fidelity. Fortunately, the tootling intervention is not time intensive can easily be implemented without disrupting typical classroom routines. In addition, due to the increases in on-task behavior and decreases in disruptive behavior, teachers may benefit from more time to focus on teaching as opposed to managing classroom behaviors (Skinner et al., 2002).

**Limitations and Future Research**

There are several limitations that should be taken into account when interpreting results of this study. First, observers were not completely blind to the purpose of the study and the proposed hypotheses. An invitation was emailed by the primary investigator’s advisor in order to recruit individuals to help collect data for the study. The email was sent to each graduate student in a school psychology doctoral program and each undergraduate student on the doctoral program’s research team. The individuals who volunteered to assist with data collection were two graduate students in the school psychology doctoral program, one of whom was in the same cohort as the primary researcher. Thus, it is possible the observation data could have been collected with bias. Attempts were made to limit this potential bias by providing the operational definitions of the target behaviors on every data collection sheet.

Second, the high levels of on-task behavior and low levels of disruptive behavior observed during baseline phases limited the opportunity for large improvements during
intervention. Although on-task behavior increased and disruptive behavior decreased overall as expected, future studies should consider using screening criteria to determine classrooms where the tootling intervention may be most appropriate. Selection of classrooms that have lower rates of on-task and higher rates of disruptive behavior may allow for more opportunities for behavior to improve between baseline and intervention conditions. Similarly, low levels of prosocial behavior were observed across classrooms during baseline and intervention phases. While Classroom B showed an increase in prosocial behavior, Classrooms A and C showed little improvement and thus the intervention was not as effective at increasing prosocial behavior.

Third, although this study utilized a multiple baseline design across classrooms to examine the effectiveness of the intervention, each classroom consisted of a small sample of students. Special education classrooms are typically comprised of less students than inclusive classrooms and other settings. Thus, more replications are needed to determine if tootling is effective with this population. Similarly, a single K-8 school located in a rural community was the setting for this study. Additional research should be conducted with a larger sample of students and across multiple schools and settings.

A fourth limitation of this study includes the time constraints surrounding data collection. Data collection did not begin until the first day of April, with data being collected 2 to 4 days each week for a total of 8 weeks. Data collection ended during the last week of the school year in which students may have been affected by the decrease in typical academic instruction. The time constraints also prohibited follow-up data collection. Future research should extend the length of the study with at least 6 weeks of
intervention data to gather more data and include a follow-up phase to observe the dependent variables while the classrooms are not tootling.

A fifth limitation of this study was the small number of tootles produced in each classroom. Although Skinner et al. (2000) and Cashwell et al. (2001) proved that students in younger grades, such as the grades of the participants in this study, could be taught to observe and report peers’ prosocial behaviors, it is unclear whether these findings are applicable to special education settings. It is possible that the academic demands placed on students in this study were too difficult for some of the students, while others may have not been as motivated to write tootles. As previously mentioned, Classroom A’s teacher commented that it was harder for her students to understand the tootling concepts since her classroom had lower achieving students. Future studies may need to lengthen the training of the tootling procedures or figure out how best to teach students how to tootle and ensure understanding.

A final limitation of this study was the uncertainty of whether the positive effects associated with the tootling intervention (e.g., decreased disruptive behavior) generalized outside of the special education classroom. For instance, it is unknown if disruptive behavior remained at lower levels during intervention in which students were in their mainstream classrooms, or if the lower levels were only observed during the social skills groups. It is possible that the Hawthorne effect (i.e., students being aware that they are being observed; Roethlisberger & Dickson, 1966) may have contributed to the positive changes during the tootling phase. Additional research examining students’ behavior in other classes and during academic tasks may be warranted to support the generalization
and sustainability of the tootling intervention.

Despite limitations of this study, the tootling intervention provided special education teachers with an effective strategy for applying well-established behavioral principles within their classroom to improve behavior. Managing student misbehavior can be difficult for general and special education teachers alike. Peer-mediated interventions, such as tootling, take some of the burden off of teachers so they can spend more time teaching students. When tootling, students learn to be aware of and respond to their peers’ prosocial behaviors. Tootling has been shown to be effective in increasing on-task behavior, decreasing disruptive behavior, and increasing prosocial behavior within the general education population. This study extended the existing tootling literature by applying the intervention to three special education classrooms. In general, the intervention proved to be effective in increasing on-task behavior and decreasing disruptive behavior, and was moderately effective in increasing prosocial behavior. However, continued research investigating tootling in a variety of settings and with a variety of individuals is needed to determine the effects of tootling on behavior.
References


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intervention procedures. *Behavior Analysis in Practice, 7*(2), 126-137.


Shelton-Quinn, A. (2009). *Increasing positive peer reporting and on-task behavior using a peer monitoring interdependent group contingency program with public posting*


Appendix A

Institutional Review Board Approval

September 20, 2018

Dear Carlos Panahon, Ph.D:

Re: IRB Proposal entitled "[1307675-3] Evaluating the Effects of Tootling when Implemented in Special Education Classrooms Providing Behavior Supports"

Review Level: Level [II]

Your IRB Proposal has been approved as of September 20, 2018. On behalf of the Minnesota State University, Mankato IRB, we wish you success with your study. Remember that you must seek approval for any changes in your study, its design, funding source, consent process, or any part of the study that may affect participants in the study (see https://grad.mnsu.edu/irb/revision.html). Should any of the participants in your study suffer a research-related injury or other harmful outcome, you are required to report them to the Associate Vice-President of Research and Dean of Graduate Studies immediately.

When you complete your data collection or should you discontinue your study, you must submit a Closure request (see https://grad.mnsu.edu/irb/closure.html). All documents related to this research must be stored for a minimum of three years following the date on your Closure request. Please include your IRBNet ID number with any correspondence with the IRB.

The Principal Investigator (PI) is responsible for maintaining signed consent forms in a secure location at MSU for 3 years following the submission of a Closure request. If the PI leaves MSU before the end of the 3-year timeline, he/she is responsible for following "Consent Form Maintenance" procedures posted online (see http://grad.mnsu.edu/irb/storingconsentforms.pdf).

Sincerely,

Mary Hadley, Ph.D.
IRB Coordinator

Jeffrey Buchanan, PhD
IRB Co-Chair

Julie Carlson, Ed.D.
IRB Co-Chair

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Minnesota State University, Mankato IRB’s records.
Appendix B

Parent/Guardian Consent Form

My name is Jannine Ray and I am currently an employee of Tri-City United district as well as a doctoral candidate in the School Psychology Program at Minnesota State University, Mankato. I am inviting your child to participate in a research project being conducted in your child’s classroom. The purpose of the project is to evaluate the effectiveness of a class-wide behavioral intervention with students in special education exhibiting behavior difficulties.

I am the legal guardian of _____________________________. I provide my consent for his/her participation in this research project on the effectiveness of a classwide behavioral intervention to increase prosocial (i.e., student-helping-student) behaviors of students exhibiting behavior difficulties. I understand that Carlos J. Panahon, Ph.D and Jannine Ray, M.S. from the Psychology Department at Minnesota State University, Mankato (MNSU) are the primary investigators on the project. I understand that participation in this study involves the following:

1) I will read this consent form and sign if I agree to allow my child to participate. Upon signing the consent form, I will send the form back to school with my child, who will then give the form to his or her teacher.
2) All students in the classroom will be taught the procedures of a classwide behavioral intervention called “tootling.” Tootling is derived from the term “tattling” and the phrase “tooting your own horn.” When tootling, students are encouraged to make note of peers’ prosocial, or positive, behaviors. Students then have the opportunity to write down instances of peers’ prosocial behaviors throughout the time they are in the special education classroom. For example, a tootle “Johnny” may write is: “Rebecca held the door open for Chris.” Johnny would then submit the tootle to a container held at the front of the room. Upon reaching a predetermined number of tootles (i.e., reports of peers’ prosocial behaviors), the entire class earns a reward such as additional recess time, a pizza party, etc. Daily procedures will not take more than 10 minutes to complete and will be done within the classroom. Before the tootling procedures begin, as well as during and after the study concludes, researchers will be conducting observations in the classroom 3-5 days a week for 30-minutes. Researchers will observe on-task behavior (e.g., student sitting in his or her assigned seat, raising his or her hand to answer a question), disruptive behavior (e.g., yelling, throwing objects), and prosocial behaviors (e.g., student helping another student with his or her homework). Data collected will be reported as classwide (see Confidentiality).

Confidentiality: No identifying information will be collected from students. All data that are collected will be reported as classwide; no individual student data will be reported.

Voluntary Participation: No student is required to actively participate in this study. Students will be given a choice in a classwide format about whether or not to participate. If you and your

Initial: _______
child choose not to participate, the child will still remain in the classroom and may have a peer write a tootle about them (i.e., report on his/her positive behavior). However, your child will not have their behavior observed or recorded by the researchers. Your child’s decision whether or not to participate will not affect his or her relationship with Minnesota State University, Mankato, and refusal to participate will involve no penalty or loss of benefits. Due to the voluntary nature of this study, if the student wishes to stop the study at any point, they may choose to do so by informing his or her teacher of the decision.

**Risks and Benefits:**

- **Risks:** The potential risks of this study are minimal and not greater than that in a normal classroom setting. The student may not enjoy the activity. In addition, the class may not reach their tootling goal to earn a class-wide reward. Therefore, researchers will collaborate with teachers to select realistic goals for the number of tootles needed to earn a class-wide reward. Teachers will also be encouraged to follow the procedures for using the intervention in order to remind students of what helping behaviors look like.

- **Benefits:** By participating in this study, the student has the opportunity to acknowledge peers’ prosocial behaviors and work with his or her class to earn a reward. Research has shown that by acknowledging peers’ prosocial/helping behaviors in the classroom, disruptive behaviors decrease and positive behaviors increase. The researchers hope to identify the best and most efficient methods of behavior interventions to inform future classroom methods.

**Contacts:** The researchers conducting this study are Carlos J. Panahon, Ph.D and Jannine Ray, M.S. If you have questions, you are encouraged to contact Dr. Panahon at (507) 389-2815, carlos.panahon@mnsu.edu, or 103 Armstrong Hall, Minnesota State University, Mankato, MN 56001, or you may contact Jannine at jannine.ray@mnsu.edu. You may also use this contact information to obtain a copy of this consent form. If you have any questions about participants' rights and for research-related injuries, please contact the Administrator of the Institutional Review Board, at (507) 389-1242.

This project obtained Minnesota State University, Mankato Institutional Review Board (IRB) approval. The IRBNet ID Number is 1307675.

Parent or Guardian Name (please print): __________________________________________

Parent or Guardian Signature: ______________________________________________________

Date: _________________________
Appendix C

Teacher Script for Tootling Training Session

Teacher Name: __________________________ Date of Training: __________________________

1. Introduce and define tootling.

   **Say:** What is tattling? *(Pause to allow students time to answer).* We are going to talk about the opposite of tattling, calling Tootling. When you are tootling, you are recognizing when your classmates do something good or helpful for someone instead of when they do something wrong.

2. Start a discussion with the class by first giving an example of an appropriate tootle and then asking students to provide their own. Give an example of an incorrect tootle.

   **Say:** One example of an appropriate tootle is, “John helped Matt with his project.” Another example of an appropriate tootle might be, “Maggie picked up Tyler’s pencil for him.” Who can give me another example of a good thing that a classmate other than yourself said or did for someone else?

   *Praise acceptable examples and provide feedback for inappropriate examples.*

   **Say:** An incorrect tootle does not give the classmate’s name who did the good behavior or does not say exactly what the classmate did. For example, “He held the door” is not an appropriate tootle because it does not say who held the door open or who they held it open for.

3. Explain tootling procedures.

   **Say:** Each time you see one of your classmates do something good or nice for someone during this class period, you’re going to fill out a card and submit it to this container. Once we, as a class, reach ____ appropriate tootles, we will earn a reward! We get to choose the reward and we will work as a class when we’re in here to get to ____ tootles.

   *TALK ABOUT REWARDS*

4. Demonstrate how to fill out the tootle cards.

   **Say:** Now I’ll show you how to write your tootles. On the left side of your tootle cards *(point out box on model copy)*, you’ll see your classmates’ names listed. You will put a check mark in the box of the friend you are ‘tootling’ on. The middle box has a few different good behaviors to get you started. You can write in other good behaviors you see your classmates do *(show)*. The box on the right also has your classmates’ names listed. You will check who the good behavior was done for.

   **Then Say:** For example, if ____ held the door open for _____, I would check these boxes *(show)*.

5. Have students practice writing tootles.

   **Say:** Now I want to see you try writing a tootle *(principal investigator passes out tootles and ensures students have something to write with).* I’ll give you a short story and I want
you to practice writing a tootle based on that story. When you’re finished, I will collect our tootles and read them out loud so we can practice more together. Ready?

**Then Say:** Mary looked confused during the math lesson. Ben offered to help Mary. How would I write a tootle if I saw this happen? Go ahead and fill out your tootle cards.

[Give students time to complete their tootle before reading them aloud and providing praise for appropriate tootles and corrective feedback for inappropriate tootles (e.g., ‘tootled’ on themselves, did not specify the behavior, did not fill tootle out completely)].

**Say:** Let’s try another one. Jack dropped his pencil and it went under Laura’s desk. Laura picked it up and gave it to Jack. How would I write a tootle if I saw this happen? Go ahead and fill out a tootle card.

[Give students time to complete their tootle before reading them aloud and providing praise for appropriate tootles and corrective feedback for inappropriate tootles (e.g., ‘tootled’ on themselves, did not specify the behavior, did not fill tootle out completely)].

**Say:** Here’s another example to try. Chris tripped in the hallway. Max helped him up. How would I write a tootle if I saw this happen? Go ahead and fill out a tootle card.

[Give students time to complete their tootle before reading them aloud and providing praise for appropriate tootles and corrective feedback for inappropriate tootles (e.g., ‘tootled’ on themselves, did not specify the behavior, did not fill tootle out completely)].

6. **Ensure each student has successfully written at least 1 tootle. If not, come up with another simple scenario for students to practice ‘tootling.’**

7. **Tell the class how to go about submitting tootles.**

**Say:** Great! Now you know how to tootle on your friends. You can put your tootles in this container (*hold up container*) during your free time between activities. This means you should hold on to your tootles until I tell you it’s a good time to submit tootles. Then you may get up and put your tootles in the container.

8. **Tell the class that you will count the tootles and add them up for their reward.**

**Say:** At the end of each day, I will count the number of tootles in our container and add it to this poster (*show goal thermometer*). Once we reach our goal, our class will earn our reward!

9. **Allow the class to come up with reward ideas and then choose two or three appropriate rewards.**
Appendix D

Procedural Integrity Checklist for Tootling Training

1. Introduction and Definition of Tootling:
   Ask students how they define tattling
   Define tootling as reporting when peers do something helpful or are kind to others
   Provide class with examples and nonexamples of tootles
   Ask students to provide their own examples of tootles

2. Explain Tootling Procedures:
   Explain the daily tootling procedure (e.g., “each time you see a classmate do something nice for someone, fill out a card and submit it to this container…”)
   Talk about potential rewards

3. Demonstrate how to Tootle:
   Show boxes on model copy with students’ names listed
   Explain that students can either check a good behavior box or write their own in

4. Students Practice how to Tootle:
   Pass out tootles
   Practice with vignettes in teacher script
   Teacher ensures each student correctly completes a tootle for at least 1 of the 3 scenarios

5. Submitting Tootles:
   Teacher shows students where the container is
   Explains when appropriate and non-appropriate times to submit tootles are (i.e., during free time, between activities)
   Tell class teacher will count tootles at end of each group and add them up
   If class meets their goal, they earn their reward the next day

6. Conclusion:
   Principal investigator provides feedback on any errors or omitted steps
   Ask the teacher if there are any questions about the procedures

Number of steps completed: _____ / 17 = _____ %

Date: ______________________________

Observer Name(s): ______________________________
Appendix E

Tootling Checklist for Teachers

**Directions:** Please read each component of the tootling intervention and check whether or not it was completed for that day.

<table>
<thead>
<tr>
<th>Component</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>*If goal was met on the previous school day, reward is provided</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention materials are present and visible (i.e., tootling container, goal thermometer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students were provided tootle cards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students were encouraged to monitor peers’ prosocial behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tootles were read at the end of the session (e.g., social skills group)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Praise was given for appropriate tootles and corrective feedback for tootles not meeting criteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class progress toward goal was updated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*If goal is met, class is praised and reward is discussed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F

Tootling Components Checklist for Researchers

**Directions:** Please read each component of the tootling intervention and check whether or not it was observed for that day.

Researcher Name: _________________________________________________________

Date of Observation: __________________________________________

<table>
<thead>
<tr>
<th>Component</th>
<th>Observed</th>
<th>Not Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>*If goal was met on the previous school day, reward is provided</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention materials are present (e.g., tootle cards, container, goal thermometer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher reminded students of tootling procedures and encouraged tootling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher counted number of appropriate tootles and provided corrective feedback for tootles that did not meet criteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class progress toward goal was updated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*If goal is met, class is praised and reward is discussed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>13</td>
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<td>21</td>
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<tr>
<td>51</td>
<td>52</td>
<td>53</td>
</tr>
</tbody>
</table>

**Data Collection Form**

- **Appendix H**
- **Data Collection Form**

Date collected: [Date]

Time and date: [Time and date]

(Additional information or comments can be added here as needed.)
Appendix I

Tootling Log

Please use the following chart to track the tootles in the classroom. At the end of each tootling session, write in the current number of appropriate tootles your class has earned upon reviewing them as a class. If the class met their goal on this day, please check the “Goal Met” box.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
</tr>
<tr>
<td></td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
</tr>
<tr>
<td></td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
</tr>
<tr>
<td>4/8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
</tr>
<tr>
<td></td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
</tr>
<tr>
<td></td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
</tr>
<tr>
<td>4/15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
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<tr>
<td></td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
<td>Current Goal ____</td>
</tr>
<tr>
<td></td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
</tr>
<tr>
<td>4/22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO SCHOOL</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
</tr>
<tr>
<td></td>
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<td>Current Goal ____</td>
</tr>
<tr>
<td></td>
<td>Goal Met: □</td>
<td>Goal Met: □</td>
<td>Goal Met: □</td>
<td>Goal Met: □</td>
</tr>
<tr>
<td>4/29</td>
<td></td>
<td></td>
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<td>Current # of Tootles ____</td>
<td>Current # of Tootles ____</td>
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<td>Current Goal ____</td>
<td>Current Goal ____</td>
</tr>
<tr>
<td></td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
<td>Goal Met □</td>
</tr>
</tbody>
</table>
May
Tootling Log

Please use the following chart to track the tootles in the classroom.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5/1</td>
<td></td>
<td>5/3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current # of Tootles ___</td>
<td>Current Goal ___</td>
<td>Goal Met [ ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current Goal ___</td>
<td>Goal Met [ ]</td>
<td>Goal Met [ ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5/6</td>
<td>5/7</td>
<td>5/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5/9</td>
<td>5/10</td>
<td>5/11</td>
</tr>
<tr>
<td>5/13</td>
<td>5/14</td>
<td>Current # of Tootles ___</td>
<td>Current Goal ___</td>
<td>Goal Met [ ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current Goal ___</td>
<td>Goal Met [ ]</td>
<td>Goal Met [ ]</td>
</tr>
<tr>
<td></td>
<td>5/15</td>
<td>5/16</td>
<td>5/17</td>
<td>5/20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current # of Tootles ___</td>
<td>Current Goal ___</td>
<td>Goal Met [ ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current Goal ___</td>
<td>Goal Met [ ]</td>
<td>Goal Met [ ]</td>
</tr>
</tbody>
</table>
Appendix J

Modified Intervention Rating Profile

Post-Intervention

Rater completing this form: _______________________________ Date: _______________________________

The purpose of this questionnaire is to obtain information on teachers’ perceptions of the tootling intervention and its effectiveness with students who have social, emotional, and/or behavioral concerns. Please circle the number which best describes your agreement or disagreement with each statement.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>This was an acceptable intervention for the students’ problem behaviors.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>Most teachers would find the tootling intervention appropriate for children with similar needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>This intervention proved effective in supporting the students’ needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>I would suggest the use of the tootling intervention to other teachers.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5.</td>
<td>The students’ needs were severe enough to warrant use of the tootling intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>Most teachers would find the tootling intervention suitable for the needs of their students.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7.</td>
<td>I would be willing to use the tootling intervention in the classroom setting again.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8.</td>
<td>The tootling intervention did not result in negative side effects for the students</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9.</td>
<td>The tootling intervention would be appropriate for a variety of children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10.</td>
<td>The tootling intervention was consistent with those I have used in classroom settings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11.</td>
<td>The tootling intervention was a fair way to handle the students’ needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12.</td>
<td>The tootling intervention was reasonable for the needs of the students.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13.</td>
<td>I liked the procedures used in the tootling intervention.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14.</td>
<td>The tootling intervention was a good way to handle this students’ needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15.</td>
<td>Overall, the tootling intervention was beneficial for the students.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Comments: _______________________________________________________________________________________________

Total (sum all points circled; higher scores indicate higher acceptability; range = 15-90): _______________________________

Appendix K

Figure 1. Percentage of intervals of occurrence for on-task, disruptive, and prosocial behavior across classrooms.
Appendix L

Table 1

Percentage of Data Points Exceeding the Median

<table>
<thead>
<tr>
<th>Classroom</th>
<th>On-Task Behavior</th>
<th>Disruptive Behavior</th>
<th>Prosocial Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom A</td>
<td>100%</td>
<td>100%</td>
<td>50%</td>
</tr>
<tr>
<td>Classroom B</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Classroom C</td>
<td>100%</td>
<td>100%</td>
<td>67%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>72%</strong></td>
</tr>
</tbody>
</table>