2024

Enhancing a School Readiness Skill Through a Mindfulness-Based Intervention: Soles of the Feet

Caitlin J. Moen
Minnesota State University, Mankato

Enhancing a School Readiness Skill Through a Mindfulness-Based Intervention: Soles of the Feet

Caitlin J. Moen, M.S.

Minnesota State University, Mankato

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

May 2024

April 25, 2024

Enhancing a School Readiness Skill Through a Mindfulness-Based Intervention: Soles of the Feet

Caitlin J. Moen

This dissertation has been examined and approved by the following members of the student's committee.

_____
Carlos J. Panahon, Ph.D.,
Advisor

_____
Shawna Petersen-Brown, Ph.D.,
Committee Member

_____
Angelica Aguirre, Ph.D.,
Committee Member

_____
Kimberly Zammit, Ph.D.,
Committee Member

Copyright

Copyright © Caitlin J. Moen 2024

Dedication

This dissertation is dedicated to the family who didn't get to see the finish line. Dad, grandma, grandpa, we did it.

Acknowledgements

First, I would like to thank my academic advisor and committee members, Dr. Chip Panahon, Dr. Shawna Petersen-Brown, Dr. Angelica Aguirre, and Dr. Kimberly Zammitt for your knowledge, time, and encouragement throughout this process. I could not have imagined a better committee for this project, you all added perspectives that enhanced each aspect of this research and for that I am truly grateful. I would express my deepest appreciation to my advisor, Dr. Chip Panahon. Chip, many, *many* thanks for the continuous encouragement and guidance throughout this project, and my time in the program. I don't think there's anyone else who could understand my late-night brainstorming drafts and panic messages and always manage to guide me in the right direction. I am forever grateful for everything you've done for me in the last 6 years.

To the faculty who have taught me everything I've come to learn in the program, thank you. Your teachings have gone far beyond what I had hoped to learn and helped form my interests and career goals today. To my forever friends in Cohort XI, you have been such a lifeline throughout this program. This is what the cohort model is all about, supportive people leaning on each other through the trials and tribulations of graduate school. You are all rockstars and I'm so honored to be in this field with you. To the other members of the school psychology doctoral program who I have had the pleasure of getting to know, I thank you all for your support and encouragement.

To my family, thank you for believing in me. Your constant encouragement and support made this possible. To my friends, I cannot put into words all the things you have done for me in the past 6 years. Vex and Erica, you are my family and my friends, I can't thank you enough.

Abstract of the Dissertation

Enhancing a School Readiness Skill Through a Mindfulness-Based Intervention: Soles of the Feet

Caitlin J. Moen, M.S.

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
May 2023

Approximately one million children enroll in kindergarten each year with varying levels of experience and school readiness. Fundamental school readiness skills parallel executive functioning skills, which multiple interventions are able to target. School readiness intervention programs can be costly and require a considerable amount of training. Teachers and other school staff need an affordable, easy-to-implement intervention that targets critical school readiness skills. Mindfulness-based interventions (MBIs) have been found to improve executive functioning skills like self-regulation, which is skill for school readiness. Soles of the Feet (SOF) is an evidence-based MBI that has been found effective for increasing self-regulation in school-aged children. This study sought to pilot SOF with kindergarten students to increase academic engagement and decrease disruptive behavior for those who were identified as needing support in this area. Using a multiple baseline across subjects design, academic engagement and disruptive behavior data were collected during baseline, SOF training, SOF independent, and SOF reminders phases. Results demonstrated increases in academic engagement, particularly during the reminder phase. Near-zero levels of disruptive behavior were observed throughout phases. Limitations and future directions for research were discussed.

Table of Contents

Enhancing a School Readiness Skill Through a Mindfulness-Based Intervention: Soles of the Feet

Every year, approximately four million children enroll in public kindergarten programs to begin their educational careers (U.S. Department of Education, 2019). As these young children start their formal schooling, a growing number of published studies have highlighted the importance of early educational experiences on one's development, particularly in ages 3-5 (Scott-Little et al., 2007). At this age, children can be enrolled in school readiness programs, or preschool, which are designed to enhance their skills to be prepared for the beginning of elementary school. These "school readiness years" are fundamental for students to acquire the skills to become school ready. School readiness is most often defined as the basic skills that children need at school entry to adapt successfully to their school environment and achieve at adequate levels (Boivin & Bierman, 2014). There is not a one-size-fits-all definition of school readiness, most teachers and parents have their own definition of what school ready means to them. Researchers and stakeholders agree that school readiness is multidimensional, with a consideration for academic, behavioral, social, and cognitive skills that children must possess to function successfully in various school contexts (Boivin & Bierman, 2014).

Minnesota uses the Early Childhood Indicators of Progress (ECIP) as a resource to guide teachers and other providers with shared expectations based on research to determine the skills students need to be school ready for children from birth to age five (Minnesota Department of Education [MDE], 2017). The ECIP has taken much of its basis from the Early Childhood Learning and Knowledge Center (ECLKC), part of the Department of Health and Human Services (Head Start ECLKC, 2021). The ECIP is a framework that fulfills three purposes: provide a resource to early childhood professionals, support quality improvement initiatives in

early childhood care and education and align across the full educational spectrum from birth to secondary school (MDE, 2017). The ECIP is not used to determine a child's eligibility for various programs, services, or schools, or deny children access to programs or services. Also, the ECIP is not a curriculum or assessment tool, rather, it should be used to inform curricular decisions that correlate with assessment procedures and content (MDE, 2017). The ECIP includes six learning domains which are broken down into components, subcomponents, and indicators. Components are specific areas of learning within the domain, subcomponents are consistent strands within a component across the full age-range continuum, and indicators are expectations for observable outcomes for the child at specific ages. Indicators are the most measurable element of the ECIP and used to guide specific areas of improvement for children (MDE, 2017).

The six learning domains included in the ECIP are 1) Approaches to Learning, 2) Social and Emotional Development, 3) Language, Literacy, and Communications, 4) Creativity and the Arts, 5) Cognitive Development: Mathematics, Science, and Social Systems, and 6) Physical Movement and Development (MDE, 2017). Again, within each domain there are various components, subcomponents, and lastly indicators, which include observable outcome expectations for children at each age. This paper focuses on only two ECIP domains in-depth: Approaches to Learning and Social and Emotional Development, as these domains relate closest to executive functioning skills.

Executive Functioning and School Readiness

In 1991, the National Education Goals Panel adopted the "Ready to Learn" mantra for children (Williams & Lerner, 2019). Their first goal was to have all children entering school ready and able to learn by the year 2000. Prior to this, most school readiness skills were

determined by a one-time assessment or no assessment (High, 2008; Williams & Lerner, 2019). Many current school readiness skills focus on the acquisition of emergent literacy skills and other discrete content memorization. While important, these skills may not meet what children need developmentally to succeed in kindergarten and beyond (Mann et al., 2017).

One component of school readiness development is a child's Executive Functioning (EF) abilities. Executive Functioning refers to a complex set of cognitive regulatory processes that highlight adaptive, goal-directed responding to a new or challenging situation (Bierman et al., 2008). Rapid growth in children's EF skills occur between ages 3 and 5. This growth allows for children to inhibit initial, often inappropriate responses in favor of a more appropriate alternate responses to novel situations (Bierman et al., 2008). Having well-developed EF skills enables children to regulate their emotions, sustain attention, and improve their short and long-term memory recall. The thinking skills related to EF contribute to the foundation of succeeding in school, solving problems, and planning (Blair, 2016). For example, Fabes et al. (1999) found that children who had higher EF skills exhibited more socially competent behaviors such as helping others and being friendly. In addition, McClelland et al. (2007) found that components of EF positively predicted emergent literacy, vocabulary, and math skills on the Woodcock Johnson Tests of Achievement. There are three core components that EF consists of: working memory, inhibitory control, and cognitive flexibility (Razza & Raymond, 2015). Together, these interrelated processes support children's ability to actively monitor and control their thoughts and subsequent actions.

Working memory allows for children to keep relevant information accessible during problem-solving activities (Fitzpatrick & Pagani, 2012). This component allows children to remember and act on mental representations. Children can acquire academic knowledge, engage

in mental rehearsal, and increase the likelihood of consolidation of information into long-term memory (Bierman et al., 2008). Beginning at approximately 29 months, children can demonstrate increases in their ability to sustain attention and use working memory to solve problems. This ability is demonstrated through their task persistence on games and activities as well as focused attention to complete tasks. As a school readiness skill, working memory includes focused, goal-directed behavior used to complete tasks such as projects, attention to instruction, and autonomous learning in the classroom (Fitzpatrick & Pagani, 2012). In preschool, this is especially important for remembering instructions and classroom rules while participating in activities. Children with better working memory skills are likely to have better academic engagement by the time they reach kindergarten. These children will also show better task-persistence, self-discipline, and autonomous learning which can lead to more positive academic and social outcomes later in life (Fitzpatrick & Pagani, 2012).

Fitzpatrick and Pagani (2012) sought to determine whether a child's working memory skills around the age of 3 could reliably predict those same skills in kindergarten. They measured working memory skills using the Imitation Sorting Task, a reliable and valid measure for measuring working memory in very young children. Results indicated that working memory skills in early childhood predicted persistent, focused, and goal-directed behavior in kindergarten. Also, an association between early childhood working memory and kindergarten math and reading achievement was found. The researchers concluded that working memory skills in early childhood are correlated with a child's ability to navigate the demands of the kindergarten classroom. Results suggest providing supports in early childhood could improve a child's working memory skills and could benefit them academically. To summarize, working memory is a critical skill children need to be able to follow directions, recall a sequence of

events in a story, and perform mental operations without having to write them down (Razza &

Raymond, 2015).

Inhibitory control is a child's ability to delay responding, typically a dominant response,

in favor of a subdominant response (Bierman et al., 2008). In other words, children use

inhibitory control to resist distractions and control impulsive behaviors. For example, a child

may want to immediately run up to an animal display at the zoo, but with strong inhibitory

control, the child realizes that running to the enclosure will scare the animal, so they walk up

instead. This skill facilitates selective attention and self-regulation (Eisenberg et al., 2010). Self-

regulation abilities begin to develop at 18 months and remain highly malleable through age 5

(Morrison et al., 2010). Blair and Razza (2007) found that inhibitory control is a predictor of

math abilities in kindergarten. That is, students who measured higher on inhibitory control tasks

did better on beginning math assessments than those who measured lower. Similarly, inhibitory

control assessments conducted in the Fall with kindergarteners have been predictive of

vocabulary and math assessments in the Spring using the Woodcock Johnson Tests of

Achievement (McClelland et al., 2007). Inhibitory control, specifically self-regulation, is

important for school readiness as students are often given a novel task or problem (e.g.,

transitions, waiting in lines, taking turns) that they may react negatively to initially but with

increased self-regulation can choose a better, more appropriate response (Bierman et al., 2008).

Relatedly, attention falls under the umbrella of inhibitory control skills a child must

possess to be considered school ready. During early childhood, the ability to shift and sustain

attention develops rapidly. Bierman et al. (2008) described preschool-aged children's difficulty

with flexible thinking as "attentional inertia" or finding it challenging to think about the same

thing in different ways or with a different perspective. When attentional control is properly

developed, children can understand and process information in working memory that will then be stored long-term (Bierman et al., 2008). Attentional control allows children to focus their attention where needed, maintain concentration on tasks, resist interference, and ignore distractions. This skill is critical when students are doing many things, likely for the first time, such as listening to new instructions, directions for activities, or working independently on a task (Bierman et al., 2008).

Cognitive flexibility, or set shifting, involves the ability to shift one's thinking or attention in response to the changing demands of the environment (Razza & Raymond, 2015). Cognitive flexibility is presented in five different types of set shifting. The first type is location shifting, which requires one to be able to spatially locate stimuli with a shifting and nonshifting condition. The second type is attribute shifting, which requires the individual to be able to identify different attributes of a stimuli (e.g., size and shape) and switch focus between attributes. The third is rule switching, this type of task requires children to ignore learned responses and instead assign new rules to a set of stimuli. The fourth type is object switching, where children can identify shifts between actual stimuli or objects presented. The fifth is task switching, children with the ability to task switch can alternate between two or more different tasks using the same stimuli (Kramer & Stephens, 2014). Children who exhibit strong cognitive flexibility have better interactions with their peers and adults, these children can think about social situations in different ways and cooperate with their peers rather than compete with them (Ciairano et al., 2007).

In addition to the influence EF skills have on achievement (see Blair & Razza, 2007, for review), EF skills also have a direct impact on adaptive classroom behaviors which are indicative of children's academic trajectories (Razza & Raymond, 2015). Ponitz et al. (2009) found

evidence for global EF in the Fall of kindergarten predicting Spring levels of behavioral regulation in the classroom. Children who had greater inhibitory control were associated with better teacher reported on-task behaviors in the classroom (e.g., staying focused on work, working diligently, staying on-task). Children with deficits in working memory and inhibitory control may display externalizing behaviors such as aggression and outbursts (Eisenberg et al., 1997).

With a strong connection between EF and school readiness, it's important that schools, teachers, and parents know the areas of development directly related to these skills to ensure they are fostered in children early in their school career. For children at-risk of academic and behavioral difficulties, strengthening their EF can be a helpful strategy for leveling the playing field between them and their peers with stronger EF (Razza & Raymond, 2015). Domains, subdomains, components, and indicators related to EF can be used to inform intervention and guide instruction for children who may be at risk or having trouble with school readiness skills. This next section will delve into the ECIP domains and their components most closely related to EF.

Approaches to Learning Domain

The Approaches to Learning Domain focuses on traits that children should develop to be successful learners in schooling and throughout their lives. These traits are expressed in four components of the Approaches to Learning Domain. The first component is Initiative and Curiosity. Children should show an active interest in their surroundings, people, and objects and demonstrate eagerness to learn. Curious children explore their learning environment and seek new information. Second is the Attentiveness, Engagement, and Persistence component where children should be able to show focus, maintain attention, and make constructive choices and

plans to achieve a goal. Children with skills in this component are better able to stay on-task and shift attention where it is needed. The third component is Creativity, where children can demonstrate originality and inventiveness in a variety of ways by expressing their own unique ideas. This may be expressed in how children plan out projects or engage in unique strategies to complete assignments. The fourth component is Processing and Utilizing Information. This component includes how children use their working memory skills to bring newly learned information to novel situations. Upon school entry students should be able to gather, store, and organize information that is perceived through their senses to use or apply that information in new situations (MDE, 2017).

Ellefson et al. (2006) found that different features of EF have been associated with different aspects of performance within math and reading. For example, mental flexibility (i.e., set-shifting) accounted for a considerable amount of variance in children's (6- to 10-year-olds) accuracy on math tests, while speed on the same tests was accounted for by inhibitory control. Children's ability to take notes while reading can be accounted for by their ability to inhibit initial responding to external stimuli (Razza & Raymond, 2015).

Social and Emotional Domain

The Social and Emotional Domain includes the developmentally appropriate expectations of children to guide their behavior, affect their overall mental health, and impact their ability to succeed academically as well as socially as they move through schooling (MDE, 2017). This domain consists of three components: Self and Emotional Awareness, Self-Management, and Social Understanding and Relationships. The first two components relate closest to EF skills and will be discussed in more detail. Within the Self and Emotional Awareness component, students should demonstrate confidence, self-awareness, and understanding their own emotions, others'

emotions, and awareness of emotions becoming reactions and behaviors. Within the Self-Management component, students should be able to manage thinking, manage their emotions and behaviors, notice and respond to others and their emotions, establish and sustain relationships, and interact with others in a meaningful way (MDE, 2017).

These social and emotional skills present in the Social and Emotional Domain are implicated in the regulation of thinking and behavior necessary for school success, children who have deficits in EF skills may find social and behavioral tasks required for school particularly difficult (Razza & Raymond, 2015). These children may struggle sharing, taking turns, picking up on subtle social cues and staying attentive in class. Similarly, children who struggle set-shifting may mistake behaviors that are adaptive in one situation but unproductive in another. These children may try to utilize the same social behaviors in a group project that they would a competitive playground game (Razza & Raymond, 2015).

Are Students Ready for School?

Regardless of their level of "readiness," all children in Minnesota can attend kindergarten if they are at least 5 years old by September 1st of the year they are due to enter kindergarten, have completed early childhood screening, and meet immunization requirements (Admission to Public School, 2006). While many children attend preschool, Head Start, or childcare education, many other children's first exposure to formal schooling begins at kindergarten entry (West et al., 2000). Given the discrepancies in educational experiences prior to entering kindergarten, it is expected that children will vary in their levels of readiness to enter kindergarten prepared for the academic, behavioral, and social challenges that are ahead of them. Researchers have found considerable differences in kindergarteners' language, literacy and math abilities, social/emotional skills, and approaches to learning upon kindergarten entry (Wertheimer et al.,

2003). These areas influence each other greatly as children who start behind in one or more area risk being unable to catch up to their peers without early intervention (Duncan et al., 2007).

The Early Childhood Longitudinal Study (Tourangeau et al., 2015) followed a nationally representative sample of over 18,000 kindergarteners from kindergarten entry through 5th grade. This longitudinal study of one cohort of kindergarteners used direct child assessments, interviews with parents, teachers, and administrators to learn about children's development at home and at school (Institute of Education Sciences, 2017). These data helped researchers and educators understand trends in kindergarten readiness and subsequent outcomes across school years.

At kindergarten entry, teachers rated approximately one-third of children entering kindergarten in need of support in both academic and behavioral domains and one-third of children as not proficient in either academic or behavioral domains (Bernstein et al., 2014). Teacher ratings included indicators of children's academic and behavioral skills at school entry such as reading, math, approaches to learning (e.g., paying attention and adapting to changes in routine), and social-emotional/executive function skills (e.g., self-control, interpersonal skills, problem behaviors, attentional focus, and inhibitory control; Bernstein et al., 2014). Ratings were determined on a 5-point Likert scale, with a rating of 1 needing significant support and 5 exceeding expectations. Survey data found that only 27% of children were rated with a score of 3, "in progress," or higher in most reading and math skills. Teachers rated 43% of children as in progress or higher on most approaches to learning items, and 46% received an in-progress rating or higher on social-emotional/executive function items (Bernstein et al., 2014). These survey results indicate that students would benefit from additional support in these areas, and

interventions shown to increase EF skills while keeping students academically engaged are needed.

School Readiness Interventions

There are many evidence-based interventions available for children in schools that target academic, social, and behavioral needs. According to the Every Students Succeeds Act (2015), "evidence-based" is defined as an activity, strategy, or intervention that demonstrates a statistically significant effect on improving student outcomes based on strong, moderate, or promising evidence from at least one well-designed and well-implemented experimental or quasi-experimental study. Several school-based interventions meet these criteria and can be found on web-based databases such as the What Works Clearinghouse and Intervention Central (Burns et al., 2017). Interventions retrieved from web-based databases, intervention-oriented journals, or books are excellent options to determine proper interventions based on the needs of a class, however, only a few of them target school readiness, and none seem to target school readiness skills for children already in kindergarten.

One intervention that targets teachers' ability to create positive classroom climates is The Incredible Years (Webster-Stratton et al., 2004). The Incredible Years was designed to strengthen teacher classroom management, teacher-child relationships, and provide concrete strategies for supporting children's emotional and behavioral regulation (Webster-Stratton et al., 2004). This intervention uses classroom management strategies to improve students' executive function and behavior regulation, directly impacting their learning behaviors. It has been shown that math and literacy skills also improved as a direct result of the child-level outcomes (Mattera et al., 2021). The Incredible Years has shown efficacy for improving school readiness skills but not without a cost. Depending on the number of teachers using the program, The Incredible

Years may cost anywhere from $490 to $600 per person per academic year (The Incredible Years, 2013). This financial cost may be too much of a burden for many school districts.

A review by Mattera et al. (2021) discussed interventions used to target cognitive skills related to EF, also called pre-academic skills. The researchers hypothesized that working with math concepts like problem solving and sequencing can have spillover effects on EF skills like working memory and inhibitory control. This relationship was corroborated by Blair and Razza (2007), who also suggested associations between math learning and EF. A school readiness intervention focused on math skills is Building Blocks, this evidence-based math curriculum has shown effects on children's math skills in multiple randomized controlled trials (Mattera et al., 2021). It is hypothesized that the quality and amount of math practice influences executive function and behavior regulation, directly impacting learning behaviors especially in math (Mattera et al., 2021). Like The Incredible Years, Building Blocks is expensive when purchasing for multiple classrooms. One Building Blocks teacher package (i.e., one classroom) is $520 and the manipulatives students will use in the classroom cost $445. This subscription, unlike The Incredible Years, lasts for 6 years (McGraw Hill, 2021).

School readiness interventions that target EF and academics, especially ones that are affordable, easy to learn and implement, and do not require much from the teacher to keep the intervention going are difficult to find. Extensive training is required to instruct children using both The Incredible Years and Building Blocks. These trainings can be challenging to schedule when teachers have been feeling overwhelmed, burnt out, and struggling to keep up with the demands of the job (Dworkin, 1986). School readiness interventions that target EF should be feasible, acceptable, and effective for both teachers and students. One such intervention category that has been found feasible, acceptable, and effective are mindfulness-based interventions

(MBI). These next sections will dive further into MBIs, their outcomes, and how they can be a beneficial school readiness intervention that targets EF.

Mindfulness-Based Interventions

Stemming from the Buddhist tradition, mindfulness is often described as a state of consciousness in which there is enhanced attention in moment-to-moment experiences, and internal and external sensations are noticed without judgment (Zoogman et al., 2015). Mindfulness meditation has been used as an intervention for symptoms of depression and anxiety disorders in adults and adolescents for over 40 years with positive outcomes and moderate effect sizes (Klingbeil et al., 2017a; Zoogman et al., 2015). Within the realm of clinical psychology, components of mindfulness represent skills that can be learned and have a therapeutic effect on life outcomes (Klingbeil et al., 2017a). Clinical mindfulness-based interventions (MBIs) aim to teach "decentering," or noticing and understanding one's thoughts, feelings, and body sensations as just thoughts, feelings, and body sensations rather than an outright reflection of the self (Zoogman et al., 2015). Research with adults and children have found that contemplative practices such as MBIs improved aspects of self-regulation including emotional regulation and attentional control (Klingbeil et al., 2017a).

Within a school setting, MBIs are treatments that intentionally train mindfulness skills (i.e., self-regulation, attention, focus on the immediate experience paired with an accepting attitude toward one's own experience) to reduce problem behavior and/or increase wellbeing behavior in students (Klingbeil et al., 2017a). Currently, mindfulness research in schools focuses on lowering students' symptoms of stress, anxiety, and depression with the hope that they will be able to spend more time focused on school. Published studies using MBIs in the schools have focused predominantly on their benefit for secondary, middle, and older elementary students to

increase their ability to manage stress, emotions, and coping skills (Erwin et al., 2017; Felver et al., 2016; Klingbeil et al., 2017b; Zenner et al., 2014).

Using MBIs as more than a clinical treatment and additionally a school-based intervention has been occurring over the last 30 years (Zoogman et al., 2015). There is growing interest in using mindfulness in the schools due to its popularity in research and practice. The potential for positive outcomes in non-clinical populations has made this type of intervention more appealing for use in the school setting. Given these benefits, researchers are seeking to replicate the positive outcomes with young children in the school setting, whether that is class-wide, at-risk individuals, or children identified as having a need for targeted intervention (Shapiro et al., 2015).

Evidence-Based Interventions

Two types of MBIs, Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982) and Mindfulness-Based Cognitive Therapy for Children (MBCT-C; Semple & Lee, 2011), have been well-researched and found effective in both clinical and school settings using rigorous research methodology. MBSR typically consists of eight weekly 2-2½ hour sessions and a full day retreat between weeks 6 and 7. This intervention has been modified slightly to match the needs of older children in the schools by taking the core components of MBSR and making developmentally appropriate adaptations such as the use of visuals and tangibles, and less time consuming so it can be taught in schools (Felver et al., 2016). MBCT-C was adapted to be developmentally appropriate for children from a prior intervention, Mindfulness Based Cognitive Therapy (MBCT; Segal et al., 2002). MBCT originally sought to combine the ideas of cognitive therapy with meditative practices developed by Jon Kabat-Zinn to be used specifically for people who are currently or have previously dealt with depression (Segal et al., 2002). MBCT-C is a

manualized group psychotherapy treatment for children ages 9-13 years. The goal of MBCT-C is to help children by improving their social-emotional resiliency, their attention, and decreasing anxiety symptoms and behavior problems (Semple et al., 2009).

A meta-analysis conducted by Zoogman et al. (2015) reviewed 20 studies using a combination of randomized control trials and treatment only groups. Of these 20 studies, eight used MBSR or components of MBSR and three used MBCT-C. The overall, non-specific effect sizes of the MBIs were small to medium, with children in the treatment groups frequently outperforming their control group peers on various dependent measures including improved behaviors, increased feelings of well-being, and decreased negative cognitions (Zoogman et al., 2015). Felver et al. (2016) reviewed the existing literature on MBIs in the schools and found that most interventions used were MBSR, MBCT-C, or included components of MBSR and/or MBCT-C. Outcomes of studies using MBSR, MBCT-C, and their components were overwhelmingly positive as students reported decreased anxiety, reduced depression symptoms, decreased rumination, and improved social skills. Similarly, teacher reports endorsed increased academic engagement and reduced hyperactivity exhibited by the students in the classroom (Felver et al., 2016). These results are promising as MBIs implemented in schools could help students who struggle with mental health concerns and behavioral difficulties. However, the challenges with using MBIs in the schools is often due to the rigor associated with both teaching and learning these interventions. MBSR and MBCT-C require significantly more training than other interventions used in the schools. Even with adaptations for school-aged populations, MBIs are more intensive and individualized than other academic and behavioral interventions (Klingbeil et al., 2017a).

Another evidence-based mindfulness intervention option to implement in a school setting is Soles of the Feet (SOF; Felver & Singh, 2020; Felver et al., 2013; Singh et al., 2003). This manualized MBI is less rigorous and designed to teach students a self-regulation strategy to reduce aggressive and disruptive behaviors in the classroom. Children are taught a three-step routine that consists of 1) noticing the situation, 2) focus awareness on strong feelings without having to change them, and 3) shifting concentration to the soles of their feet to calm down (Felver et al., 2014). This intervention focuses on reflection and awareness of emotion, which allows children to practice understanding and empathy when faced with challenging thoughts and feelings. This intervention was first piloted by Singh et al. (2003) with a 27-year-old man displaying low frequency, high-intensity aggressive behaviors in a psychiatric hospital. The participant had a dual diagnosis of intellectual disability and conduct disorder which led to instances of physically and verbally aggressive behaviors. The interventionist worked with the participant for 30 minutes a day, twice a day, for five days until he reached the point of automaticity, or independent use of the intervention. Results showed that the participant increased his self-control and decreased his physically and verbally aggressive behaviors even at the 1-year follow-up (Singh et al., 2003).

Singh and colleagues have been successful expanding this intervention into school-aged populations (Singh et al., 2007; 2011a; 2011b). The recurring dependent variable in these studies was the self-regulation of aggressive behavior. Children and adolescents with autism spectrum disorder, intellectual disabilities, and conduct disorder were all able to use the intervention to decrease their aggressive behaviors and increase their self-control.

Research on the effectiveness of Soles of the Feet with school-aged children has been further examined by Felver and colleagues. For example, Felver et al. (2014; 2017) conducted

studies with general education and special education elementary students, respectively. In both studies, researchers sought to use SOF to decrease off-task behavior and increase academic engagement and attention. Felver et al. (2014) implemented SOF with general education students, when the intervention had previously only been used with exceptional populations. Participants in this study were three students in a general education third-grade classroom. Their teacher nominated these students due to their need for intervention for their demonstrated high rates of disruptive behavior and low rates of academic engagement. Felver et al. (2014) used Singh et al. (2003) manualized procedure to train the students on SOF. The students attended five 20–30-minute sessions on consecutive school days to learn SOF. Results of this study confirmed the researchers' hypothesis that SOF would increase student's academic engagement and decrease off-task behavior. SOF was also found to be feasible and acceptable per teacher and student ratings.

Felver et al. (2017) was a replication study that implemented SOF with students receiving special education services in grades 4-7. Following SOF Training and implementation, all student participants showed improved levels of academic engagement and both the teacher and students found the intervention acceptable and feasible. These results suggest that SOF can be trained to and used by elementary and middle school students to manage emotions and responding, both facets of self-regulation that are critical to school readiness and success.

While other manualized mindfulness interventions require more abstract thinking concepts such as imagery or whole-body awareness, Soles of the Feet relies on one part of the body young children are very familiar with. Using the feet as an anchor for awareness is a simple, tangible, and accessible option for the majority of young children. This more simplified approach to mindfulness has been effective for individuals who may demonstrate difficulties

with higher-order thinking, as demonstrated in previous research (Singh et al., 2003; 2007; 2010).

Mindfulness-Based Interventions and School Readiness

Mindfulness-based interventions have been shown to improve self-regulation of attention and emotions for children and adolescents (Meiklejohn et al., 2012). A qualitative review from Bannirchelvam et al. (2017) also found that MBIs had the greatest impact on attention, emotional regulation, optimism, and prosocial behavior. Self-regulation and attention are two key components of both executive functioning and school readiness necessary for students to succeed in school. As previously mentioned, self-regulation is essential for learning as it allows students to be academically engaged, remember teacher instructions, stay on task, and process information (Savina, 2021). In conjunction with the self-regulation of attention, being able to self-regulate one's responses and behaviors are critical for school success. Response inhibition, or the ability to delay or modulate motor responding, can make or break a child's ability to successfully navigate school (Hofmann et al., 2012). Deficits in this area of self-regulation manifest in a child struggling to wait their turn, interrupting others, making careless mistakes, and acting impulsively (Barkley, 2012). If MBIs have been shown to improve self-regulation for a variety of individuals, then it makes sense to implement them as a school readiness intervention where those skills are so desperately needed.

The research on the use of MBIs for school readiness skills is practically non-existent. Zelazo and Lyons (2012) reviewed the potential for mindfulness to be used in early childhood years (3-5) to improve EF using a neuropsychological approach. Their findings suggested that stress interferes with children's self-regulation, and positive stimuli may facilitate their ability to self-regulate. By engaging in mindfulness, a mild positive mood and increased dopamine levels

in the PFC may be induced. However, strong emotional reactions can likely interfere with self-regulation. In their review of the literature, parent- and teacher-reported self-regulation in elementary school children with low EF improved after using various mindfulness training interventions. Children also self-reported mindful awareness which was correlated with their EF skills. Johnson et al., (2011) found that compared to a business-as-usual control condition, preschool children randomly assigned to a small group biweekly mindfulness training curriculum showed improved sustained attention and perspective taking, but not cognitive flexibility. Further research is necessary to find developmentally appropriate MBIs that target such EF skills and improve school readiness.

There are multiple studies comparing EF to current and later achievement in school (e.g., Alloway et al., 2005; Best et al., 2011; Bierman et al., 2011; Blair & Razza, 2007; Bonino & Cattelino, 1999; Brock et al., 2009; Bull & Scerif, 2001; Clark et al., 2010). Razza et al. (2015) evaluated the effectiveness of a mindful yoga program with children 3-5-years old to see if the program improves self-regulation. This was a first-of-its-kind study that found via direct assessments of EF skills that young children can participate in MBIs and can improve self-regulation in the process. These results are promising as there has been skepticism in the implementation of MBIs with young children due to the rigor that has been involved with MBCT-C and MBSR teacher training and implementation (Klingbeil et al., 2017b).

There is sufficient evidence that self-regulation is important for school success. In elementary school, strong EF skills (such as self-regulation) significantly predicted higher reading and mathematics achievement between kindergarten and second grade when controlling prior achievement, child IQ, and other background variables (McClelland et al., 2007). As children progress through their education, self-regulation becomes closely connected to

outcomes beyond achievement. Social competence, emotional, cognitive, and behavioral engagement, self-regulated learning, and motivation are all improved with strong foundational self-regulation skills in childhood (McClelland & Cameron, 2012).

McClelland et al. (2013) found that children who were rated one standard deviation higher on attention span persistence measures at age 4 had 49% greater odds of completing college by age 25. The term "attention span persistence" was used in favor of the broader self-regulation due to the measure being completed by guardians who may not understand self-regulation in its entirety. Attention span persistence included the ability to focus, attend to relevant information, and persist on a task. Aspects of attention span persistence have predicted long-term achievement and educational attainment outcomes outside of graduating and completing college. Self-regulation of attention at ages 5-6 was significantly predictive of reading and math achievement between kindergarten and early high school (Duncan et al., 2007), task persistence in early adolescence predicted grades in later adolescence as well as income, occupational level, and educational attainment in middle adulthood for men (Andersson & Bergman, 2011). Based on prior research and McClellan et al.'s (2013) study, there is support that early EF skills are malleable, interventions can improve these skills, and improved EF skills are related to stronger achievement in children throughout the educational lifespan.

Purpose of the Present Study

In the general education classroom, Soles of the Feet has shown to be effective in improving fundamental school readiness skills that are also components of executive functioning, self-regulation of attention and responding (Felver et al., 2014; Felver et al., 2017; Singh et al., 2003; 2011). These benefits have been demonstrated in children as young as eight but not in younger school-aged populations. With the combined potential presented by Zelazo and Lyons (2012) linking EF and mindfulness in younger children, and the school readiness skills unintentionally enhanced through SOF, it is likely that the SOF mindfulness intervention would be an effective intervention when implemented with younger elementary students. Linking back to the ECIP, children should be able to be self-aware enough to manage their thinking, emotions, and behaviors as well as attend to instruction and learning to be considered "school ready" (MDE, 2017).

The proposed study sought to replicate and expand on Felver et al. (2014) by using SOF with kindergarten general education students to determine the extent to which SOF increases the overlapping EF and school readiness skills: self-regulation of attention and responding. This study aimed to increase academic engagement and reduce disruptive behavior in kindergarten students. In addition, this study examined the feasibility, social validity, and acceptability of the intervention when delivered to kindergarten students in a general education classroom. The following research questions guided the present study:

1. To what extent does Soles of the Feet increase academic engagement in kindergarten students?

2. To what extent does Soles of the Feet decrease disruptive behavior in kindergarten students?

3. To what extent is Soles of the Feet a feasible and acceptable intervention as rated by teachers?

4. To what extent is Soles of the Feet a socially valid intervention as rated by kindergarten students?

It was predicted that SOF would increase academic engagement and decrease disruptive behavior in kindergarten students. SOF has been shown to be effective in controlling aggressive outbursts and other forms of disruptive behavior, making functioning easier for those who use it (Singh et al., 2007a; 2007b). It was also predicted that SOF would be a feasible and acceptable intervention as rated by teachers. Lastly, it was predicted that SOF would be rated as socially valid by kindergarten students. Students taught SOF in previous studies found the intervention to be fair, easy, enjoyable, and a way to do better in school (Felver et al., 2014; 2017).

Methods

Participants and Setting

This study was conducted in a primary school in southwestern Minnesota. According to the National Center for Education Statistics, the primary school consisted of 199 students in preschool and kindergarten during the 2022-2023 school year. Institutional Review Board (IRB) approval from Minnesota State University, Mankato was obtained in February 2023 (IRB# 1960766). Later that month, school administration approved the study. The principal investigator (PI) described the study to the building principal and a request for potential participants was made. The principal forwarded the study description and request for participants to all eight kindergarten teachers. Teachers who consented to participate nominated two to three general education students they felt had low levels of academic engagement and/or high levels of disruptive behavior during core instructional periods. Seven teachers nominated three students each, while one teacher nominated two students. All 23 nominated students were male, and their race/ethnicity was white.

Before collecting any student data, parental consent forms (Appendix A) were sent home. Two copies of the consent form were sent home with their student so that parents could keep one copy for their records. Parent or guardian signature on the returned form indicated that they agreed to have their child participate in the study. Twelve parental consent forms were returned with appropriate signatures. Parents and teachers were both made aware verbally and in writing that their child may or may not be selected to participate in the study based on the results of their observations and teacher interview.

Eligibility criteria for the current study included the student being enrolled in kindergarten, not receiving special education services, and being referred by their classroom

teacher for displaying (a) high rates of disruptive behavior, (b) high levels of school attendance, (c) possess the ability to comprehend the English language, and (d) did not display elopement behaviors to ensure the student has access to the Soles of the Feet (SOF) program and were in the classroom for direct observation data collection. Teachers first nominated their students based on their perceptions of high rates of disruptive behavior, then a teacher interview and preliminary direct observation session were used to make final inclusion decisions. Twenty students were excluded due to observed high rates of on-task behavior and ability to redirect easily with teacher or other staff reminders. Based on preliminary observations and results from teacher interviews, three students were selected to participate in the study. Each student was from a different classroom which likely reduced potential interactions between participants during the study.

Mitchell

Mitchell was a 5-year-old white male student nominated due to his high rates of off-task and disruptive behavior during core instructional periods. His classroom teacher identified behaviors that included talking out during instruction, passive off-task behavior such as looking around the room and putting his head down, and active off-task and disruptive behaviors such as talking to peers, fidgeting with hands and feet, shifting in his seat, and walking around the classroom when instructed to be seated or working independently. Results from the Functional Assessment Checklist for Teachers and Staff (FACTS; Anderson & Borgmeier, 2007) interview conducted with the teacher identified that his disruptive behaviors would occur most often during whole class instruction at the beginning and end of the day, as well as during transitions between activities. The hypothesized primary function of Mitchell's behavior was to avoid what he thought to be "boring" activities in the classroom, a secondary function of Mitchell's behavior was hypothesized to be seeking sensory stimulation. During the preliminary observation,

Mitchell was observed fidgeting in his seat during instruction, finding nearby objects to play with (e.g., corner of rug, pad of chair leg), talking to other students, and walking around the classroom during instruction. When walking around, Mitchell would grab tissues, hand sanitizer, throw things away, or find other items that he could use to get up and move around the room. These behaviors would distract other students in the classroom during core instructional periods. At the time of the study, Mitchell was only receiving school-wide behavioral support. That is, the school social worker would come into the classroom once a week for a social emotional learning lesson using the Second Step curriculum. He would occasionally meet with the school social worker to discuss strategies he could use to stay on-task, but due to limited resources and teacher buy-in, Tier 2 interventions were not being implemented with fidelity in Mitchell's classroom.

Nick

Nick was a 6-year-old white male student referred for high rates of off-task and disruptive behavior during work time, particularly group work time. Disruptive behaviors included verbal and physical aggression toward peers and calling out swear words and/or slurs toward others. Results from the FACTS indicated that his off-task and disruptive behaviors were most likely to occur during non-structured activities, free time, and transitions. The hypothesized primary function of Nick's off-task behaviors was to obtain peer attention, and the secondary function was to avoid uncomfortable interactions/feelings. Based on information from the teacher interview, Nick was a very sensitive and perfectionist student who wanted to make friends but struggled to due to his interactions with siblings at home. At the time of the study, Nick was receiving behavior support as needed. For instances of major behaviors (i.e., slurs, swearing, physical aggression), Nick would be sent to the social worker or principal to discuss the incident and strategies he could use instead of the problem behaviors. There was not a set

curriculum or intervention for these interactions with staff. Nick also received weekly Second Step lessons in the classroom.

Chase

Chase was a 6-year-old white male student nominated because of his high rates of off-task and disruptive behavior during core instruction periods and transitions. Off-task behaviors included verbal and physical aggression toward himself, calling/blurting out, and active off-task behaviors during core instruction such as moving out of his assigned spot, talking to peers, and fidgeting. Results from the FACTS indicated that Chase's off-task behaviors were most likely to occur during academic instruction and transitions. The hypothesized function of his behaviors was to obtain peer and adult attention, and the hypothesized secondary function of his behaviors was to avoid an expectation/task. Chase struggled with quick transitions or schedule changes which led to tantrums and other off-task behaviors. Chase's teacher reported that he will react quickly with intense emotion when upset, then become apologetic and embarrassed after having a tantrum. Chase would try to make up for his explosive outbursts by being extra helpful around the classroom and with peers.

Researchers

One doctoral candidate, the PI, conducted teacher interviews, initial observations of student behavior, and training sessions with students. Two additional doctoral candidates served as research assistants who assisted with student observations and interobserver agreement (IOA). Both research assistants completed training with the PI prior to being cleared to collect data. As part of their training, they were provided with an overview of the study and objective definitions of on- and off-task behaviors. In addition, research assistants received training on using observation materials, this included practice using the observation materials with videos of

students in classrooms available online for free. Research assistants were considered proficient when there was at least 90% agreement during video observations. The research assistants obtained 97% agreement with the PI during training.

Materials

Materials used for this study included the Functional Assessment Checklist for Teachers and Staff, the Soles of the Feet intervention manual, worksheets for intervention training, data collection sheets to be filled out during subsequent observation sessions, and social validity scales.

Functional Assessment Checklist for Teachers and Staff

Teacher interviews involved the PI completing the FACTS with the classroom teachers of nominated students (Appendix B; Anderson & Borgmeier, 2007). The FACTS is a brief, semi-structured interview designed to identify the specific topography, frequency, duration, and intensity of a problematic behavior, then identify the contexts in which the behavior is most likely to occur. This 15-minute interview helped identify antecedents, consequences, setting events, and/or environmental factors related to the problematic behaviors for each child, and identify the instructional period when these behaviors are most likely to occur. Results from the FACTS interviews helped determine which students exhibited the most disruptive behavior that not only interfered with their learning, but also the learning of students around them.

Intervention Manual

The scope and sequence of the Soles of the Feet intervention came from Felver and Singh's (2020) *Mindfulness in the Classroom: An Evidence-Based Program to Reduce Disruptive Behavior and Increase Academic Engagement.* The intervention was divided into five sessions, each conducted on five consecutive days for approximately 30-60 minutes. Each

training session included direct training, worksheets, and feedback which was guided by scripts and directions for implementation according to the manual. Some modifications were made based on perceived student understanding of material, which will be described in further detail in the Procedures section. Prior to each training session, student assent was obtained. Students were asked to participate using a pre-written script from the child assent form (Appendix C). The PI verbally read the assent form to the student before the start of the session.

Observation Recording Form

Throughout the baseline and intervention phases, researchers used a systematic observation data collection form created for the study (Appendix D). This form included the operational definition of on-task behavior, examples of active and passive off-task behaviors, and numbered intervals with boxes labeled for each behavior so observers could easily follow along with the 15-second intervals. A free interval timer application on a smart phone was also used during each observation.

Social Validity Ratings

At the study's completion, teachers and students completed a post-intervention validity interview. Teachers completed an interview modeled after Felver et al. (2014), using both open ended and yes/no responses to gauge the intervention's effectiveness and applicability for students (see Appendix E). Students verbally completed a modified version of the Children's Intervention Rating Profile (CIRP; Appendix F; Witt & Elliott, 1985) using yes/no responses that assessed the extent to which students enjoyed the intervention, believed it was fair, SOF's difficulty, and its effectiveness as rated by the student participants.

Preliminary Procedures

To objectively identify and confirm rates of student behavior, teacher interviews and direct observations of nominated students were conducted before baseline data collection periods began. Following the FACTS, the PI conducted one preliminary direct observation of student behavior following procedures from Felver et al. (2017) to confirm teacher reports, identify observation periods, and assess impact on other students' learning. One 20-minute direct observation was conducted for all 23 nominated students during the teacher-identified instructional period and time of day. During this observation period, students were coded using a 15-second partial-interval coding procedure whereby students were recorded as being on-task if their head and body were oriented toward the target task while actively attending to the assigned material, or the student's head and body were oriented toward the target task while passively attending to assigned classroom tasks and included behaviors such as listening to a lecture, looking through a worksheet silently, and looking at the teacher during instruction. During the preliminary observation, participating students displayed the following on-task percentages, Mitchell (30% on-task), Nick (70% on-task), and Chase (40% on-task). While Nick did not demonstrate high rates of off-task or disruptive behavior, his behaviors of concern negatively impacts peers' learning and it was determined that Nick would benefit from an intervention targeting emotional control.

Measures

Data collection procedures included measures of dependent variables (i.e., academic engagement and disruptive/off-task behavior) and social validity. These measures were replicated from the Felver et al. (2014; 2017) studies.

Systematic Direct Observation

Systematic direct observations of student behavior were conducted to measure dependent variables. Academically engaged, or on-task, behavior was the primary dependent variable. Academically engaged behavior was operationally defined as the student's head and body being oriented toward the target task while actively attending to assigned material, and/or the student's head and body being oriented toward the target task while passively attending to assigned classroom tasks. This includes, but is not limited to, listening to a lecture, reading assigned materials silently, working on independent assignments, looking at the teacher giving directions, walking around the classroom appropriately, standing in line appropriately, and talking with other students at a reasonable volume when directed to. This definition was expanded from Felver et al. (2014), who briefly defined on-task as "either actively or passively attending to assigned classwork or instruction" (p. 591). Academically engaged behavior was recorded using momentary time sampling (MTS), whereby an occurrence of on-task behavior was recorded with an "X" if it occurred at the end of the 15-second interval.

Student disruptive behavior was the secondary dependent variable. These behaviors were operationally defined as either motor activity not directly associated with the assigned academic task and verbalizations not related to an assigned academic task, these behaviors would have an impact on other students' learning and the learning environment. This includes, but is not limited to, playing with toys, getting out of seat to walk around the room, making noises during silent worktime, talking to another student during silent worktime. Passive off-task (non-disruptive) behaviors included, but were not limited to, staring out the window, fidgeting with items quietly, watching other students talk, and doodling. Passive off-task behaviors did not have an impact on other students' ability to complete work and learn. Disruptive and off-task behavior were recorded using a partial interval recording (PIR), whereby an occurrence of the behavior was

recorded with an "X" if it occurred at any time during the 15-second interval. Based on the research from Felver et al. (2014; 2017) and due to the mutual exclusivity of these types of behavior, only academically engaged behaviors were analyzed and interpreted, to simplify the reporting of the results. Data on the primary dependent variables are presented as a percentage of observed intervals the student was engaging in academically engaged behavior (Figure 1).

Observations were conducted in 20-minute sessions up to three times per week for 6 weeks, with each student participant observed for at least 6 weeks due to time constraints at the end of the school year. Most sessions were conducted with one observer recording the behavior of each student. Two researchers were used to observe student behavior during sessions where interobserver agreement was calculated.

Social Validity

Teachers and students completed two social validity scales at the end of the study. Teachers completed an eight-item Post-Implementation Social Validity Interview for Teachers. The teacher interview was designed to assess teacher acceptability of SOF specifically (Felver et al., 2017). Students completed a modified version of the Children's Intervention Rating Profile (CIRP). Instead of a Likert-type scale for the seven-item measure, students were given verbal yes/no versions of CIRP questions. This modification was made due to the participants' developmental level and reading ability. Students were also asked open-ended questions about SOF.

Experimental Design and Procedures

This study utilized a concurrent multiple baseline across participants design to investigate the effectiveness of the SOF intervention for increasing academically engaged behaviors and decreasing disruptive or off-task behaviors. A multiple baseline design is used when an

intervention is associated with a permanent change in behavior. This design offers more valid and causal inferences by staggering the intervention across participants and time (Kratochwill et al., 2010). The phases in this study included baseline (A), where students received no intervention, and three intervention phases. The first intervention phase, SOF Training (B), lasted for five sessions. All students received training sessions starting on a Monday and ending on Friday during their training week. The second intervention phase, SOF Independent (C), was when students were expected to use the intervention independently during the school day. The third intervention phase, SOF Reminders (D), was when the participants used SOF independently during the school with teacher reminders as needed. Using conventional multiple-baseline procedures, baseline data collection began simultaneously for all three students until a stable level of behavior was observed and at least three data points had been collected (Kratochwill et al., 2010). Students were assigned to SOF Training order (i.e., receiving intervention first, second, or third) after a stable level of behavior was demonstrated. Baseline data collection continued until the next student started their SOF Training. As each student completed SOF Training, they entered SOF Independent (C). After students completed SOF Independent, they transitioned to the last phase of intervention, SOF Reminders (D).

Observations of student behavior occurred during baseline, SOF Training, SOF Independent, and SOF Reminders. Observations lasted 20 minutes during the class period when each student was most likely to display disruptive and off-task behavior. Observers recorded the two independent classes of behavior, academically engaged and disruptive/off-task behavior, during each interval. The PI communicated with classroom teachers at the beginning and end of the week to notify them of which phase their student was in, coordinate observation times,

discuss absences, and brief reminder training when students entered that phase of the intervention.

Baseline (A)

Prior to baseline observations, classroom teachers informed their students that the PI would be in the classroom to watch kindergarteners learn. Students were provided time to meet the PI to reduce potential reactivity effects once data collection formally began. Baseline data collection began simultaneously for all three students on their academic engagement and disruptive/off-task behaviors using systematic direct observation procedures. Baseline data were collected by the PI during times classroom teachers had determined were most problematic for each student. For example, Mitchell was observed during morning meeting time and whole-group math instruction. During these times he would be most likely to get out of his seat and engage in the disruptive behaviors previously described. Nick was observed during language arts group worktime or indoor playtime. Nick's behaviors were most problematic when working with peers in both structured and unstructured settings. Chase was observed during the transition from morning meeting to core instruction or outdoor learning. This time was challenging for him when unexpected changes came up, such as having indoor instruction rather than outdoor learning or having a substitute teacher. He would also have difficulty transitioning appropriately with peers and needed additional reminders to stay on-task. Multiple reminders would cause Chase to shut down or become frustrated, leading to a tantrum which disrupted the class. During baseline, students participated in general education classroom and other daily activities as usual. That is, students continued to receive their weekly Second Step lesson from the school social worker, but no other interventions were being implemented at that time.

Soles of the Feet Training (B)

During SOF Training, students met with the PI individually for five 30-to-60-minute sessions on consecutive school days in a private room reserved for the intervention. This room had three couches, a whiteboard, a small library of books, and a large conference table. Sessions were scheduled during times that minimized the disruption of classroom activities and student instruction. For example, Mitchell's intervention training sessions occurred during independent or small group language arts time as this was an area of strength for him, and he would not have difficulty making up work if necessary. Nick's intervention training sessions were scheduled during classroom quiet rest time. Nick typically stayed up during this time and his teacher believed it would be a better use of that time for him. Chase's training sessions took place right after lunch and recess at the start of independent work time. Chase's teacher reported that he would often need one on one directions to complete independent work tasks, which was easier to provide after other students knew the directions and began their work. Due to availability of observers, observations of student behavior occurred on one of the days during intervention training. This observation was conducted in the same manner as the baseline phase with observations occurring at times designated most problematic for each student, lasting 20 minutes and recording both on- and off-task behavior. The observation during SOF Training occurred after the 3rd training session for each student.

Session 1. This session focused on introducing the SOF intervention to the students and was broken up into ten components. The first component was an introduction to the session and upcoming sessions, defining behavior expectations for training sessions, instructing posture for the intervention, learning about the different parts of the foot, practicing paying attention to the feet, and practicing the full Soles of the Feet routine with feedback and additional practice (Appendix G). Students were then encouraged to use what they have learned in session that day

to practice SOF independently at school and home. Nick had difficulty as he was distracted in the new space and wanted to explore more than learn the parts of the feet and routine. When Mitchell arrived in the training space he immediately ran to the couches, jumped on them, and ran laps around the room. He provided assent but argued with the PI about completing each step of the intervention. Chase had no difficulty following each step of the intervention and subsequent practice of the routine. It was determined at this session that Mitchell and Nick would need additional support to complete the training, including breaks. Fidelity for this session was variable across participants. Chase's session had 100% fidelity, Nick's session had 75% fidelity, while Mitchell's session had 50% fidelity.

    Session 2. During this session, students were instructed to practice the SOF routine they learned during the previous session with a pleasant feeling, or something that makes them happy. Then, the interventionist and student debriefed on the first session and additional practice; barriers to practice were addressed if necessary. Next, the student was asked to explore what happens in their mind and body when they experience a pleasant feeling, the emotion tied to this is often happiness. The student was instructed to recall a time when they felt most happy. The student was then asked to describe this memory in detail, then the interventionist described that memory back to them leading into an SOF session. The student and the interventionist reviewed how that practice went and troubleshot any difficulties the student may have experienced during that session. Session 2 closed with a review of the purpose of SOF: to change internal feelings to modify external responses. The session concluded with a final practice of SOF led by the student. If the student struggled to remember the script, the interventionist helped guide them.

    This session was modified for all students such that intervention steps were outlined for Mitchell and Nick, and checked off as they went through. After completing a few steps with

fidelity, the student was able to take a short break away from the training space (table) for one minute and return to the intervention. If they completed all steps with fidelity, they were able to choose the final activity with the PI for 2 minutes. This modification immediately increased fidelity for Mitchell and Nick's sessions. Chase had difficulty expressing his emotions in words alone, so the PI provided blank paper for him to draw and describe the pleasant emotion and memory. This strategy was intended to be used during Session 4 but determined to be appropriate for earlier use. Chase enjoyed being able to express his emotions in this way and was much more descriptive than with words alone. All students needed extra practice to remember the parts of the foot and assistance to complete the final practice of SOF. Fidelity for each student during Session 2 was 100%.

       Session 3. This session built off the previous one by asking the student to identify an unpleasant feeling and practice SOF with the intention of decreasing or eliminating that unpleasant feeling. Session 3 began with a practice of SOF, review of the previous session, and review if the student was able to practice between sessions. Each student was introduced to the purpose of Session 3 and instructed to identify the feeling and subsequent consequences of anger or frustration, a predominant unpleasant feeling. This step was modified to be developmentally appropriate for kindergarten students, using visual tools for labeling and understanding emotions. The student was provided basic psychoeducation on the emotion of anger and differentiation between anger and aggression, the action that can follow the emotion anger. The student identified an angry event to create an *in vivo* unpleasant emotional experience. They practiced the SOF routine to diminish the unpleasant emotion. Following the routine, the interventionist debriefed with the student and troubleshot any difficulties experienced during the session. Session 3 concluded with a review of the current session, reminding the student to try practicing

between sessions, and a concluding session led by the student with interventionist assistance if necessary.

This training session was particularly challenging for Mitchell and Nick. While he participated in each step of the intervention, Mitchell appeared disengaged from the intervention. He completed each step without being fully present in the moment. For example, Mitchell would ask if he could take a break or if they were done after each step. He required a lot of probing to identify an unpleasant emotion or situation during this session. Nick did not enjoy discussing unpleasant emotions or situations. He became visibly upset when discussing them, this quickly turned to anger which was not calmed by an additional practice of SOF. A break was taken during this time to remove Nick from the training table and to have him decompress over on the couches. Nick took a few minutes to describe the situation that made him so upset and was able to return to the intervention training session for the day. This session took considerably longer than the rest (60 minutes). Chase once again used drawing to describe his emotions, he was very animated and descriptive when discussing unpleasant triggers and when they happen. Chase was also able to use SOF to calm himself during the session. Mitchell and Nick required additional practice to remember the parts of the foot and all students required assistance to complete the final practice of SOF. Fidelity for all students during Session 3 was 100%.

Session 4. This session focused on identifying individual triggers and using SOF to diminish the unpleasant emotions caused by the triggers. Session 4 started with a practice of SOF as usual, they then reviewed the previous session and assigned between-session practice. The interventionist stopped here to check for understanding. The goal was that by now the student could practice SOF independently between sessions. Session 4 introduced the term "triggers" to the student in a developmentally appropriate way. The student was asked to identify triggers to

their angry feelings, reflecting on their practice in Session 3. The interventionist and student used two worksheets to elicit and identify triggers that will guide the SOF routine in this and the next session. These worksheets utilized drawings and colors that represented emotions and triggers to be developmentally appropriate. The routine began using the student's specific triggers to elicit the unpleasant feeling, then eliminate or diminish that unpleasant feeling via SOF. The interventionist debriefed each student and checked for understanding. To close the session, the student and interventionist reviewed how the session went, provided feedback, assigned between-session practice, and ended with a student-led SOF practice.

By this session, only Chase was able to practice SOF independently and reported doing so between sessions. Troubleshooting with Nick found that he still struggled to label the parts of the foot, which made it hard to recite the SOF routine independently. It was determined that this session would include additional practice of labeling the parts of the foot and the SOF routine. When asked about barriers to independent use, Mitchell reported difficulties remembering the parts of the foot and the routine. He also indicated forgetting the routine between sessions, despite frequent practice during training. Mitchell and Nick were able to identify their triggers but did not get to the point where the SOF routine eliminated the unpleasant feeling, as the unpleasant feeling wasn't necessarily strong. Fidelity for all students during Session 4 was 100%.

Session 5. The final training session taught the student how to use SOF in daily life. The session began with SOF practice, review of the previous session, and a review of assigned between-session practice. The interventionist reviewed the curriculum and previously used materials during each session, then discussed the importance of practicing SOF to be an expert, and finally worked with the student to plan for future practice and application. The

interventionist then checked for mastery by prompting an unpleasant feeling (i.e., trigger) to use with another round of SOF. The student was reminded to practice SOF outside of the training.

By Session 5, Nick and Mitchell were tired of doing the SOF routine and both reported not practicing SOF between sessions. Nick reported feeling like he didn't need to use it and did not experience unpleasant emotions at school. Mitchell reported forgetting the SOF routine and when to use it. Chase was eager to use the intervention independently in the classroom and reported pride in memorizing the routine and how it made him feel. Fidelity for all students during Session 5 was 100%.

During the week of training for each student, a single observation was conducted after Session 3 to determine if there was an immediacy effect for SOF. The timing of the observation session was chosen because the students would have been exposed to the SOF routine several times. This is consistent with previous research using SOF with elementary-aged students (Felver et al., 2014).

Soles of the Feel Independent (C)

After completing the five training sessions, all students were observed one or two times for 20-minute sessions using SOF during the day in which they were instructed to use SOF independently based on their findings from intervention training (i.e., individual triggers, unpleasant emotions). Teachers were made aware that the participating students may be observed closing their eyes during different times throughout the day to use SOF, and to give them about a minute before checking on them if they are sitting quietly doing so. This phase lasted two weeks for each student and ended when they moved into the final phase, SOF Reminders (D).

SOF Reminders (D)

Before the intervention's final phase, the PI brought in stickers of the feet that were used during SOF Training and placed them on student desks as a visual reminder of the SOF routine. Teachers were instructed to remind their students to use SOF when students appeared upset or engaged in disruptive behavior in the classroom. These reminders can be nonverbal (e.g., pointing to the sticker on their desk) or a combination of verbal and nonverbal cue, (e.g., "you seem upset, try using your Soles of the Feet routine to help you calm down"). They discussed the previous target behaviors from the FACTS they completed at the start of the study, so if they saw those and the student was not independently using the SOF routine, the teacher could remind them to do so. Data were collected during SOF Reminder sessions for 20 minutes during times where the student was most likely to be disruptive or off-task, as indicated by their teacher.

Social Validity

After the SOF Reminder phase concluded, both students and teachers completed social validity scales. Students completed a modified version of the Children's Intervention Rating Profile (CIRP). Given the developmental level of the students, the CIRP was adapted from a Likert-type scale to yes/no questions. The PI sat with each student in a private space to review the questions and get feedback from the students about the utility of SOF for students their age. Teachers completed the Post-Implementation Social Validity Interview for Teachers via a Google Form.

Intervention Fidelity and Interobserver Agreement

Intervention fidelity monitoring was conducted by the PI after each training session. Fidelity monitoring worksheets were available in the appendix of the intervention manual and modified to include assent (Appendix H; Felver & Singh, 2020). The PI checked off whether they (a) asked for child assent prior to the start of the session, (b) reviewed the previous session,

(c) reviewed between-session practice, (d) introduced the session, (e) delivered main session content, (f) closed each session by reviewing session content, (g), made a plan for between-session practice, (h) distributed and utilized student handouts, and (i) practiced the SOF routine at least twice during the session. The mean correct implementation of SOF across all students and sessions was 95% (range = 50-100%).

Interobserver agreement (IOA) data were collected to ensure that the dependent variables were being measured reliably across observers. Due to scheduling conflicts, student absences, and availability for training, IOA was only obtained during one phase of the study for Nick and Mitchell (phase D), and two phases for Chase (phases C and D). IOA sessions involved the PI and one other research assistant observing the same student's behavior at the same time. IOA was calculated by taking the number of intervals with agreement of dependent variables, dividing that number by the total number of intervals, and multiplying that number by 100% (Cooper et al., 2014.) IOA was conducted for 33% of all observation periods. IOA averaged 99% (range 97 to 100%) across those sessions.

Results

Visual analysis was the primary method of analysis of the dependent variable. Participant data were recorded in terms of the percentage of intervals where the student was engaged in on-task (academically engaged) behavior and graphed. Participants' graphs were analyzed for changes in level of academic engagement between conditions, trends of performance across phases, overlap of data, and variability. In addition, intervention effects were compared across participants. Individual graphs for Mitchell, Nick, and Chase can be found in Appendix I.

The change in academic engagement between conditions was indicated by comparing the average of dependent variable in each phase, often referred to as the "level" for that phase. The

level is compared across phases, which helps evaluate data changes that may be due to the implementation of the intervention. Variability of the data were also examined, which looked at the extent that data points within the same phase were similar or consistent. In addition, the data trend was evaluated by analyzing the direction within a phase. For example, by connecting the first and last data points within a phase, the direction of the trend (i.e., accelerating, decelerating, zero-celerating) can be determined (Ledford et al., 2018).

The percentage of non-overlapping data (PND) was used to measure the effect of SOF on the dependent variables. PND is the oldest method created for the quantitative synthesis of single-subject research (Maggin et al., 2013). PND measures effect size by counting the number of intervention data points that exceed the highest baseline data point and dividing this number by the total number of data points in the intervention phase (Scruggs & Mastropieri, 1998). For this study, data from SOF Training, SOF Independent, and SOF Reminders were considered intervention data points. An effective PND that falls between 70-90% is considered an effective treatment, while scores above 90% reflect a highly effective treatment. A PND of 50-70% reflects questionable effectiveness, and a PND of less than 50% reflects unreliable/ineffective treatment (Alresheed et al., 2013).

Research Question 1

Visual analysis and PND were used to determine to what extent SOF increased academic engagement in kindergarten students. Participants' data were compared between baseline and intervention phases. For all three students, no increases in academic engagement were found during the SOF Training phase. During the SOF Independent phase, academic engagement increased for two participants (Nick and Chase). Academic engagement increased for all

participants during the SOF Reminder phase. Detailed analysis for each participant is provided in the subsequent sections.

Mitchell

Mitchell's academic engagement data are presented in Table 1 and visually presented in Figure 1 (Appendix J). During baseline, his mean academic engagement was 48.8% during observed intervals. Mitchell's academic engagement was low and variable with a range from 30% to 66%. Based on his low level of academic engagement and the greatest need for intervention, Mitchell was selected as the first participant to move into SOF Training. Mitchell's academic engagement of 34% during the single training observation session was identical to his last data point during. When looking at Mitchell's academically engaged behaviors across all three intervention phases, Mitchell was on-task for a mean of 70.8% of intervals (range = 34-89%). When Mitchell transitioned to SOF Training, Nick's academic engagement during baseline remained stable at 68%. During the SOF Independent observation, Mitchell's academic engagement increased 61% of observed intervals, which was similar to the upper level of his baseline range. Only one SOF Independent observation was completed as Mitchell was absent due to illness. Mitchell showed the most improvement during the SOF Reminder phase. His academically engaged behaviors increased immediately to 89% and remained above 75% throughout this phase. When provided reminders, Mitchell's mean academic engagement was 82.5% of observed intervals with a range of 75-89%. When Mitchell's initial data point in SOF Reminders increased, Nick's initial SOF Training data point remained within his baseline range. When analyzing Mitchell's baseline compared to the entire intervention phase, PND fell within the questionable range for effectiveness at 66.7%. That is, 4 of the 6 intervention data points exceeded the baseline range of 30% to 64%. Mitchell's data points during SOF Training and

SOF Independent both fell within the baseline range. Mitchell demonstrated the greatest improvement in behavior during the SOF Reminder phase as all 4 data points exceeded his baseline range.

During the training phase, before using SOF to diminish unpleasant emotions, Mitchell practiced doing so with pleasant emotions to calm down from a heightened state. When asked about pleasant emotions during training sessions, Mitchell reported being happy and excited when on vacation with his family. He could easily describe this feeling verbally to the PI. He did not enjoy using the SOF routine to calm a pleasant emotion. He would ask why someone would want to stop feeling happy, Mitchell and the PI discussed that "big feelings" that feel good or not so good could make people act without thinking first.

Mitchell's self-reported primary trigger for off-task behavior was "being bored." He reported feeling bored in the classroom because he thought school was boring. This would lead him to engage in the behaviors reported by his teacher, Mitchell's self-report was consistent with the FACTS completed with the teacher. Mitchell was a good student who learned things quickly, he disliked repetition and would become bored with instruction if it was repetitive. His favorite times of the school day were recess, lunch, physical education, and outdoor learning. When asked what he enjoyed about those times, Mitchell responded, "I can do what I want mostly." During training sessions, Mitchell and the PI discussed how the behaviors he engages in while bored can upset his classmates and teachers, because they're trying to get work done or learn the material. Mitchell experienced a good deal of frustration during SOF Training because of the repetition. He would be prompted to use the SOF routine to return to a calm state when frustrated, but it seemed like he would complete it with the PI to be done rather than to learn and use it independently. Session 1 was particularly difficult for him, despite providing his assent

prior to the session, Mitchell refused to participate and was brought back to his classroom before finishing the session. He engaged in inappropriate use of room materials and furniture, running around, and jumping. By the following session and through the rest of training, Mitchell was provided with a checklist of all the day's training steps that he would check off after he completed them. When he got halfway through the steps, Mitchell would get a one-minute movement break. He often requested higher intensity movements such as running in place, jumping jacks, or push-ups. He would try to avoid returning to the SOF training session by saying he "wasn't done," or "needed more" movement. Not being fully engaged in the training, despite being implemented with fidelity, likely hindered his ability to use SOF as intended.

Table 1

Mitchell's Average Academic Engagement Across Observations

	Baseline		SOF Training		SOF Independent		SOF Reminder	
	M	SD	M	SD	M	SD	M	SD
Academic Engagement	48.8	19.4	34.0	NA	61.0	NA	82.5	5.8

Nick

Nick's academic engagement data are presented Table 2 and visually presented in Figure 1 (Appendix I). In the baseline phase, his academic engagement behavior averaged 64% during observed intervals. Nick's academic engagement during baseline had a slight positive trend, however, all five data points fell within 25% of the mean (range = 58-71%). When looking at Nick's academically engaged behaviors across all three intervention phases, Nick was on-task for a mean of 82.3% of observed intervals (range = 66-96%). During the single SOF Training observation, his academic engagement (68%) was identical to his data point during baseline. At the time Nick switched from baseline to SOF Training, Chase's baseline data remained low with a decreasing trend. This suggests Chase's academic engagement was not positively impacted by Nick transition to SOF Training. Due to the reported severity of Nick's behavior, he was the

second participant moved to SOF Training. During the training phase, Nick responded similarly to Mitchell, with academic engagement falling within baseline levels during the training phase. During the SOF Independent observations, Nick's academic engagement increased to a mean of 76% as a result of being engaged for 85% of the observed intervals during the second session. When Nick's transitioned to SOF Independent, Chase's SOF Training data point remained within his baseline range Nick's academic engagement continued to increase during the SOF Reminder phase. His academically engaged behaviors averaged 91.7% of observed intervals with a range from 89 to 96%. When analyzing Nick's baseline to the three intervention phases, PND fell within the questionable range for effectiveness at 66.7% as 4 of the 6 intervention data points exceeded the baseline range. Nick's data points during the SOF Training and first SOF Independent observation were within the baseline range. Nick's data for the second SOF Independent observation and all three SOF Reminders observations exceeded the baseline range.

Nick was the most emotionally vulnerable during training sessions. Session 1 for Nick went similarly to Mitchell, he complained about the work he had to do and the repetition when practicing the routine multiple times. Despite providing assent prior to the session, Nick refused the final SOF routine which led to a decrease in fidelity for Session 1. For the rest of the training sessions Nick also received a checklist to cross off steps with a break halfway through. When asked to think of a pleasant experience, Nick described camping with his family and getting to choose what activities they did for a day. Nick reported having two older brothers who "boss him around," so he particularly enjoyed when he was able to choose activities with the family. Nick reported not noticing a difference after using SOF to calm a pleasant emotion.

Nick's self-reported primary trigger for off-task behavior was "being shy." When asked to further describe this feeling, Nick reported having a hard time asking adults and peers for help

or asking peers if they wanted to join him with something. Nick cried when describing the unpleasant emotions, which was followed with an SOF routine practice to diminish the unpleasant emotion. Unfortunately, this escalated Nick's emotions from sadness to anger and he requested a break. Nick was able to describe what made him upset during the training session. Nick reported getting picked on by his two older brothers frequently. He reported being pushed around by them, talked down to, and believed his parents wouldn't help him when his brothers would be too rough with him. Nick stated that he was worried other kids in his class would do the same thing. At this time the PI inferred that Nick's aggression toward others was a result of being picked on by his brothers at home. Nick and the PI discussed why that hurts him and how it can hurt others when it happens to them. This session (Session 3) took considerably more time than the training sessions with any of the other participants. Nick was engaged in discussion about his feelings and actions during this session. For the rest of training, Nick was able to describe unpleasant emotions, recognize triggers, but did not find that SOF did anything to change the intensity of the feelings, as Nick reported not having strong feelings about his triggers anymore. Despite not feeling that SOF could help manage his feelings and behavior, Nick did well with the psychoeducation portions of the training sessions.

Table 2

Nick's Average Academic Engagement Across Treatment Phases

	Baseline		SOF Training		SOF Independent		SOF Reminder	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Academic Engagement	64.0	5.4	68.0	NA	75.5	13.4	91.7	3.8

Chase

Chase's academic engagement data are presented in Figure 1 (Appendix J) and in Table 3. During baseline, his academic engagement during observed intervals averaged 65.3% (range =

53-81%). Chase's academic engagement decreased after the third baseline session and leveled out with a range of 53-55% for the final three observations. When looking at Chase's academically engaged behaviors across all intervention phases, Chase was on-task for a mean of 87.8% of intervals (range = 73-96%). Chase's academic engagement increased to 73% during the single SOF Training observation. This data point was within his baseline range but was higher than his performance during the last three baseline observations. During the two SOF Independent observations, Chase's academic engagement immediately increased to a mean of 90% (range = 84-96%) and exceeded his baseline performance. Chase continued to demonstrate high levels of academic engagement during the SOF Reminder phase as he was engaged 93% of the observed intervals during both observations in this phase. When analyzing data between baseline and all intervention phases, PND fell within the effective range at 80% as 4 of the 5 intervention data points exceeded his baseline performance. Chase's SOF Training observation was the only data point that fell within the baseline range. All four data points from the SOF Independent and SOF Reminders observations exceeded Chase's range during baseline.

During baseline observations, Chase showed initially higher rates of academic engagement than the other participants. By the fourth observation session, Chase showed a decrease in academic engagement from 76% to 55%, the last two baseline observation sessions were consistent around 55%. Chase's baseline and training data were unaffected by other participants' receiving training, as his training academic engagement was consistent with previous baseline academic engagement.

Chase was the most active participant throughout training. He responded well to frequent practice of the SOF routine and did not need behavior incentives to participate fully in the training sessions. Drawings were utilized so he could better express his feelings and describe

situations that triggered different emotions. Chase reported being happiest at a friend's birthday party. He drew various activities and friends who were present at the party. He was then able to follow the SOF routine to return to a calm state after getting excited. His consistent participation increased his ability to do the routine independently, particularly when it was his turn to lead the routine during sessions. By session 5, Chase reported using the routine at home and at school. There was an immediate difference in academic engagement from the training session observation to independent use, as well as during the reminder phase.

Table 3
Chase's Average Academic Engagement Across Treatment Phases

	Baseline		SOF Training		SOF Independent		SOF Reminder	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Academic Engagement	65.3	12.4	73.0	NA	90.0	8.5	93	0

Research Question 2

Based on the definition of disruptive behavior used, near-zero levels of disruptive behavior were observed during baseline, SOF Training, SOF Independent, and SOF Reminder sessions. Despite reported high rates of disruptive behavior and recorded disruptive behavior during the preliminary observations, Mitchell, Nick, and Chase did not engage in disruptive behavior during any of the observation sessions. Almost all off-task behaviors were non-disruptive for other students, and consisted of passive off-task behaviors or active off-task behaviors that did not impact other student's learning (e.g., fidgeting with items under the desk).

Research Question 3

To determine if teachers believe SOF is a feasible and acceptable intervention, data from a post-implementation social validity interview were analyzed. Both open-ended and yes/no questions were reported, and limitations to implementation were reviewed. The PI conducted the social validity interview with each participant's teacher after the completion of the study.

Mitchell

Mrs. G, Mitchell's teacher, was interviewed following the completion of data collection and intervention phases. Mrs. G's initial thoughts of the SOF intervention were that it could potentially work for Mitchell but wasn't sure due to difficulties trying to get intervention assistance for him previously. She agreed that the types of problems addressed by SOF are important. When asked if the time teachers invested in implementation was reasonable, she responded favorably. "Yes, we already know what it looks like when our students start to ramp up before they become disruptive or can no longer learn, having a visual or verbal reminder of what to use is easy for teachers." She did not find any elements of implementation challenging on her end but did say she would understand that it was likely challenging to work with Mitchell. Mrs. G believes the SOF program with no reminders was somewhat effective for the student but noted that she needed to provide several reminders to use the intervention for it to be effective for this student. She would recommend other teachers try SOF for their students but would skip the independent phase and go straight to reminders for students who are more hyperactive, such as Mitchell.

Nick

Mrs. N, Nick's teacher, was interviewed following data collection and intervention phases. Her initial thoughts were that SOF would help with Nick's emotional responses that lead to anger towards others, and she was optimistic to see that happen. She also agreed that the problems addressed by the SOF intervention are important. Mrs. N reported not having to provide many reminders for Nick to use the intervention, so the time she invested in implementation was very reasonable and not at all challenging. She felt SOF was effective for

this student, she reported only a few emotional outbursts and lots of "closing his eyes and breathing." She would recommend other teachers try SOF for their students.

Chase

The PI completed the social validity interview with Chase's teacher, Mrs. S, following data collection and intervention phases. Initially, Mrs. S was very excited when she was approached about the intervention. She believed Chase was a perfect candidate for the intervention. She was enthusiastic about the types of problems addressed by the SOF, "Absolutely! The mental health struggle for many of our students is a real and valid concern." She agreed that the amount of time teachers invest in the implementation is reasonable and did not find any elements of implementation challenging. When asked if she believed the SOF intervention was effective for Chase, she said, "Absolutely!" Mrs. S would recommend other teachers try SOF for their students.

Research Question 4

To determine if students believe SOF is a feasible and acceptable intervention, data from a post-implementation social validity interview were analyzed. The PI used a modified version of the Children's Intervention Rating Profile (CIRP) to ask the participants open-ended and yes/no questions. Follow-up questions were asked based on student responses.

Mitchell

After the completion of data collection, Mitchell was interviewed asked to give his honest opinions about SOF. Mitchell responded, "Yes," when asked if believed SOF is fair to students. He said, "Yes" to the question "Doing Soles of the Feet is too hard." When asked why he believed it was too hard, he said, "I don't know. You ask us to do a lot." Mitchell responded, "No," when asked if doing SOF might cause problems with friends. He also said, "No," when

asked if there were better ways to deal with feelings than SOF. Mitchell said, "Yes," when asked if SOF would be good to use with other students. Mitchell enjoyed doing SOF, when asked why, he said, "I liked being in the room with you." When asked if he believed SOF would help him do better in school, Mitchell said, "No." When asked why not, Mitchell said, "I don't know. I didn't learn how to read."

Nick

Nick was interviewed by the PI after data collection was completed and was asked to give his honest opinions about SOF. Nick responded, "Yes," when asked if he believed SOF is fair to students. He said, "Yes" to the question "Doing Soles of the Feet is too hard." When asked why he believed it was too hard, Nick said, "There a lot of questions to answer." Nick responded, "No," when asked if SOF might cause problems with his friends. He also said, "No," when asked if there were better ways to deal with feelings than SOF. When asked if SOF would be good to use with other students, Nick said, "No. Then they'll answer all of your questions and it's a lot." Nick did report liking SOF and thinking it would help him do better in school.

Chase

Chase was interviewed after the completion of data collection. He was asked to give his honest opinions about SOF. Chase responded, "Yes," when asked if he believed SOF is fair to students. He said, "Yes" to the question "Doing Soles of the Feet is too hard." When asked why he believed it was too hard, Chase said, "Cause I forget a lot and it's a lot to remember." Chase responded, "No," when asked if SOF might cause problems with his friends. He also said, "No," when asked if there were better ways to deal with feelings than SOF. When asked if SOF would be good to use with other students, Chase was the only student who said, "Yes." Chase did report liking SOF and thinking it would help him do better in school.

Discussion

The purpose of this study was to extend the literature base of the Soles of the Feet intervention by targeting a key skill for school readiness in kindergarten students. This study builds upon the findings of Felver et al. (2014, 2017) by investigating the effectiveness, implications for use, and social validity of SOF as an intervention for young elementary students who demonstrate low levels of academic engagement in the general education setting. This study piloted applying SOF with kindergarten students. Several findings were discovered in this study that warrant discussion.

The study's first research question examined to what extent would SOF be effective for increasing academic engagement in kindergarten students. It was hypothesized that SOF would increase participants' academic engagement since previous research demonstrated increased academic engagement for students who completed SOF training (Felver et al., 2014, 2017). All three participants demonstrated an increase in academic engagement by the end of final intervention phase. From baseline to the final reminder phase of SOF, Mitchell's mean academic engagement increased from 48.8% in baseline to 82.5% during the SOF Reminders phase, Nick's mean academic engagement increased from 64% during baseline to 91.7% during the SOF Reminders phase, and Chase's mean academic engagement increased from 65.3% during baseline to 93% during the SOF Reminders phase. When evaluating the participants' percentage of nonoverlapping data points for academic engagement, Mitchell's PND was 66.7% and Nick's was 66.7%, which fell within the questionable range for effectiveness when analyzing academic engagement between baseline and all intervention phases. Chase's PND of 80% fell within the effective range for treatment. All three participants showed the greatest increase in on-task behavior during SOF Reminders sessions. These findings suggest, for SOF to be effective,

kindergarten students may need reminders after completing intervention training due to their developmental level. The need for reminders can be traced back to Vygotsky's (1978) zone of proximal development. Whereas, compared to performing a task alone, children can perform better or complete the task with the support of an adult. In the research summarized by Qu and Ong (2015), children generally do not engage in reflection of their behavior spontaneously, therefore, researchers often use questions or other prompts for children to reflect on the situation they are facing. The act of providing a reminder or prompt takes the place of the first step of SOF, which is noticing the situation. They are then able to complete the other steps of the SOF routine independently. Further practice of the routine, even if prompted, can help generalize the skill.

These data suggest that SOF could increase academic engagement in kindergarten students with high rates of off-task behavior. These findings are consistent with previous research using SOF in the school setting to increase academic engagement (Felver et al., 2014; 2017). Previous studies also found that SOF did not produce a consistent increase in academic engagement during the training phase. This suggests that the full five training sessions are necessary for SOF to be utilized by students independently. The findings of this study also suggest that while the function(s) of the problem behaviors can vary, students can still demonstrate an increase in academic engagement when using SOF. These results are consistent with previous use of SOF, as behavior functions have included work avoidance, peer avoidance, seeking adult attention, seeking peer attention, and avoidance of a non-preferred activity (Felver et al., 2016).

Mitchell's improvements in academic engagement during the reminder phase may have been due to his teacher acknowledging his off-task or disruptive behavior by pointing to the

sticker and/or providing a verbal reminder to use SOF in that moment. It is unclear if Mitchell took the time to use the SOF routine independently or when prompted to do so during this phase. Mrs. G's anecdotal report did not confirm if he was observed using SOF independently or after a reminder.

For Nick, improvements in academic engagement during the reminder phase were likely due to the visual reminder at his desk, as his teacher reported seeing him use deep breathing in times of heightened emotion. There is a possibility that discussions about triggers, behavior, and consequences may have affected Nick's academic engagement the most. Prior to the SOF Reminders phase, Nick's academic engagement was starting to show an increasing trend. When given the visual reminder, Nick's academic engagement remained higher than baseline. When observed during the SOF Reminders phase, Nick was sharing toys with peers, laughing, smiling, and enjoying other's company. His teacher anecdotally reported an improvement in his behavior after the training sessions, and particularly after having the SOF visual placed on his desk. Due to his resistance to training and absence of independent practice, Nick's improved behavior may not have been due solely to SOF. Nick's behavior may have changed as a result of talking through his feelings and emotional responses during training sessions.

Improvements during both SOF Independent and SOF Reminders of the intervention were likely due to Chase's active participation in training and reported practice outside of sessions. Chase's classroom teacher anecdotally reported seeing Chase close his eyes and appeared to be using the intervention as he began to get upset or frustrated. Given Chase's increased academic engagement during both the independent use and reminder phases, there is evidence to suggest SOF was the primary cause of this behavior change.

The second research question focused on decreasing disruptive behaviors. It was hypothesized that SOF training would decrease disruptive behaviors in kindergarten students. Despite reported high rates of disruptive behavior by teachers, students did not demonstrate the disruptive behaviors that were objectively defined prior to data collection. Observers recorded near-zero levels of disruptive data across baseline and intervention sessions. Therefore, given the academic engagement data collected, only the increase in academic engagement can be interpreted at this time. Thus, we cannot conclude if SOF decreases disruptive behavior in kindergarten students.

Consistent with the literature of SOF in the schools, teachers of the three participants agreed that SOF was feasible and acceptable for use in their classrooms (Felver et al., 2014; 2017). Teachers agreed that the behaviors and difficulties SOF seeks to target are important for students. Teachers reported that the requirements to implement the intervention were not challenging, and overall, pretty minimal. This supports that when students are trained outside of the classroom, teachers do not have to use much effort to continue the intervention as intended. This is particularly important due to the limited resources and time teachers have available to implement evidence-based interventions with fidelity, which often leads to teacher burnout (Dworkin, 1986). All teachers recommended other teachers try SOF for their students. For students with hyperactivity such as Mitchell, it was recommended that they go straight into the reminder phase. While not addressed directly, none of the participants' teachers reported that time out of the classroom for SOF training had a negative impact on students. Working with teachers on appropriate times for training may have increased their positive perceptions of intervention implementation.

Compared to previous implementation of SOF with students, the kindergarten participants generally reported that SOF training was challenging due to the perceived amount of work they had to do as part of training. They indicated having difficulties remembering the parts of the feet and the order of the routine. These difficulties were likely be due to the combination each child's reading level, homonyms in the anatomy of the foot (i.e., ball, arch), and the homophone "sole." All three participants asked questions about the differences between "soul" and "sole." In addition to remembering the parts of the feet, working memory capabilities may have played a role in their ability to recall the parts during practice. There are five specific parts that are required to be remembered and recited throughout the SOF routine. Five-year-old children can typically recall 1.5-2 items or chunks of information in working memory at a time (Alloway et al., 2004). Participants often required additional practice during training sessions to identify the parts of the feet used in the routine. They agreed that SOF would not cause problems with friends or difficulties in school. None of the participants could identify a better alternative for dealing with feelings, however, this could be due to the recency of the intervention being provided or lack of exposure to other interventions and behavior management strategies. All participants did report liking SOF. This may have been due to the pull-out time and one on one attention, which was a function of behavior for two of the three students. Mitchell was the only one who did not believe SOF would help him in school. His response indicated he believed the question was more related to academics than behavior, as SOF did not teach him how to read. It is possible if the question was further explained to him, his answer may have been different. Overall, students reported that SOF is a good strategy for managing emotions and would not cause problems with peers. They did indicate that training sessions were challenging due to the amount of information that was required of them to learn. These results suggest that

developmental adaptations for training sessions would be beneficial to increase engagement and acceptability of the SOF intervention.

Implications

SOF is designed to be used as a self-regulation strategy to decrease disruptive behavior and increase academic engagement in students (Felver & Singh, 2020). For kindergarten students, self-regulation is a key skill necessary for school readiness (MDE, 2017). With nearly two-thirds of children entering kindergarten in need of support in this area, it would be greatly beneficial that students can be taught a self-regulation strategy that requires minimal prompting in order to increase academic engagement (Bernstein et al., 2014). While two of the three participants did not show improvements until the SOF Reminders phase, some students may not need additional reminders and could independently use the intervention to increase their academic engagement. This is especially true for students actively participate in the intervention. Findings from this suggest that kindergarten students are able to increase their self-regulation skills with SOF, and therefore improve a key school readiness skill during the end of a critical period of executive functioning development (Morrison et al., 2010).

Based on the results of this study, SOF training sessions may require modifications to support younger students' understanding of the SOF intervention and training content. Modifications could include drawing, acting out scenarios with puppets, figures, other manipulatives, and other developmentally appropriate strategies as determined by the trainer and participant's teacher. These supports are consistent with higher-cost social-emotional learning curriculum such as The Incredible Years and Second Step (Committee for Children, 2011; McGraw Hill, 2021). Even with modifications to SOF training, school cost to use the intervention would still be far less than large-scale programs to target the same skills. Additional

behavioral support during training may be necessary for students with high distractibility or work refusal, as was seen with two participants in this study. Not only does the training need to be completed with fidelity, but students should be motivated to learn the routine and underlying strategies in order for it to be effective independently or with reminders. These findings also confirm that the full five training sessions are necessary to be able to use SOF independently or with reminders. Student academic engagement was within baseline levels when measured after only completing half of the training sessions.

Consistent with previous SOF literature in the schools, teachers reported strong positive opinions about SOF when training occurs outside of the classroom and provided by someone other than the classroom teacher (Felver et al., 2014; 2017). This information can be used to increase teacher buy-in when suggesting the intervention to their students. The interventionist in this study had a moderate amount of experience implementing mindfulness to themselves, but a limited amount of formal experience applying mindfulness to others. The script, handouts, and resources available in the SOF manual make implementation straightforward and feasible for those with limited experience. This suggests school staff do not need extensive experience with mindfulness to implement the intervention with fidelity. This cuts down on resources needed to implement the intervention such as hiring coaches, using professional development time, and ongoing booster training each year.

Limitations and Future Research

One limitation to this study was the near-zero levels of student disruptive behavior observed throughout the study. The school environment and time of year may have made the biggest impact on disruptive behavior. For example, this study took place during the last six weeks of the school year. Due to this, less class time was spent on core academic instruction

while more time was spent on activities such as field trips, celebrations, and time outside.

Despite observations taking place during teacher-reported times of low academic engagement

and high disruptive behavior, the classes may have been enaged in other activities that were

generally preferred by the students. In an effort to minimize these effects, observations were

completed at the same time each day for students, in the same order, as indicated by the

classroom teacher. The observation order and timing were consistent throughout baseline and

intervention phases. Additionally, the conclusion of the school year, limited observer

availability, and student absences meant that data collection across phases were shortened. Best-

practice in single-subject research suggests gathering of at least three data points per study phase

to establish a stable level of behavior (Horner et al., 2005). Although these data suggest an effect

of the intervention, future research should take place earlier in the school year to address these

concerns. It is also possible that the variability of observation sessions across participants had an

impact on the frequency of behaviors observed. If all students were observed during the same

time (e.g., whole-group math instruction), the effect of the intervention on academic engagement

and disruptive behavior may look different. Future research could control for this variability by

conducting all observation sessions at the same time for each student.

Another limitation of this study was the inconsistency of participants practicing SOF

outside of training sessions. Anecdotal report of outside practice could have been exaggerated for

students who did report doing so, however, there was no direct measurement for the frequency of

practice outside SOF training sessions. Given the covert nature of SOF, it is truly unknown how

much the routine was practiced at home and in the classroom. Parents were not involved in

prompting outside practice sessions and were not responsible for monitoring practice at home.

This likely had an impact on the generalization of SOF in the classroom. Future research should

include a measurement, either self-report or observation, of the frequency of practice outside the training sessions.

Another limitation was the homogenous makeup of the participants, all three were white male kindergarten students. Male students comprised the majority of referrals for the study, and at the time of baseline observations no female students were given permission to proceed. The population of the district was also predominantly white, and only white students were referred. While the results of this study showed potential benefits in terms of using SOF among non-disabled, white, kindergarten-age children, future research should include a more diverse group of students including female and culturally and linguistically diverse kindergarten-age children to examine the generalizability of SOF. Future research could also look into internalizing behaviors that impact an individual's learning, such as the symptoms related to anxiety, depression, or somatization. Students with internalizing behaviors were not nominated because they were not disruptive, however, future studies could investigate improved self-regulation for these behaviors (e.g., shutting down, perfectionism).

Based on the findings of this study, future research is necessary to determine to what extent SOF decreases disruptive behavior in kindergarten students. In future work, it would be beneficial to study participants receiving special education services to see if similar results could be achieved. Future research should also explore teacher-provided SOF training in the classroom to support all students with a variety of emotional and behavioral needs. Additionally, future research should include third party fidelity monitoring of SOF training sessions, rather than clinician self-report to include both the structural (i.e., intervention content) and process (i.e., manner of implementation) components of training sessions.

Future research should include data collection on how often teachers verbally or visually prompt students to use the SOF routine in the moment. This will help determine to what extent the reminders or visuals aid in behavior change. As another method of behavior data collection applicable to kindergarten students, teachers could complete daily behavior report cards (DBR) based on the identified behaviors from the FACTS. As was identified in this study, the disruptive behaviors reported by the teachers were not observed during observation sessions. DBRs could measure changes over time in these low frequency behaviors that are missed by brief observation sessions. Instead of asking if the intervention was effective for the student, question five of the social validity questionnaire for teachers could be modified to target perceived improvement on the identified disruptive behaviors from the FACTS.

This study piloted the use of SOF with kindergarten students. SOF has been used most frequently with older elementary students through adults to increase self-regulation skills. In future applications of SOF, it would be beneficial to explore additional modifications/adaptations to the intervention to make it more developmentally appropriate. To reduce the rigor in training sessions, the five sessions could be broken up into ten shorter sessions with the same components. Determining other developmentally appropriate modifications to training would be beneficial in future applications of SOF. Drawing feelings, role-playing, or even applying a behavioral skills training (BST) approach may increase students' ability to independently use SOF. In lieu of psychoeducation, using BST to teach students the SOF routine can ensure they have mastery of the routine prior to moving on to the next session goal (Mitteer et al., 2023). Finally, completing a maintenance session and collecting follow-up data would be beneficial to see the long-term effects of the SOF intervention on academic engagement and disruptive

behavior. The more students practice the SOF routine independently, the greater likelihood they will be able to use it to self-regulate.

Conclusion

This study demonstrated the effectiveness of Soles of the Feet, a mindfulness-based intervention, at increasing academic engagement in kindergarten students with reported high-rates of disruptive behavior. In addition, this study revealed that SOF is a socially valid intervention according to teachers based on the behaviors it targets, perceived teacher effort, and student outcomes. Students reported that SOF was challenging due to the amount of content in training sessions. Students found SOF to be acceptable for use in the classroom and believe this intervention would help others. These results are promising when teachers or other support staff are looking for easy-to-implement interventions that target school readiness skills like self-regulation without high cost and extensive training.

References

Alloway, T. P., Gathercole, S. E., Adams, A. M., Willis, C., Eaglen, R. & Lamont, E. (2005). Working memory and other cognitive skills as predictors of progress towards early learning goals at school entry. *British Journal of Developmental Psychology*, *23*, 417–26. http://doi.org/10.1348/026151005X26804

Alloway, T. P., Gathercole, S. E., Willis, C. & Adams, A. M. (2004). A structural analysis of working memory and related cognitive skills in early childhood. *Journal of Experimental Child Psychology, 87*(2), 85-106. https://doi.org/10.1016/j.jecp.2003.10.002

Alresheed, F., Hott, B. L., & Bano, C. (2013). Single subject research: A synthesis of analytic methods. *Journal of Special Education Apprenticeship, 2*(1). 1-18. https://doi.org/10.58729/2167-3454.1015

Bannirchelvam, B., Bell, K. L., & Costello, S. (2017). A qualitative exploration of primary school students' experience and utilization of mindfulness. *Contemporary School Psychology, 21*(4), 304-316. https://doi.org/10.1007/s40688-017-0141-2

Barkley, R. A. (2012). *Executive functions: What they are, how they work, and how they evolved.* The Guilford Press.

Bernstein, S., West, J., Newsham, R., & Reid, M. (2014). *Kindergartners' skills at school entry: An analysis of the ECLS-K* (pp. 1–8). Mathematica Policy Research.

Best, J. R., Miller, P. H., & Naglieri, J. A. (2011). Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample. *Learning and Individual Differences*, *21*, 327–36. https://doi/org/10.1016/j.lindif.2011.01.007

Bierman, K. L., Nix, R. L., Greenberg, M. T., Blair, C. and Domitrovich, C. E. (2008). Executive

    functions and school readiness intervention: Impact, moderation and mediation in the

    Head Start REDI program. *Development and Psychopathology*, *20*, 821–43.

    https://doi.org/10.1017/S0954579408000394

Blair, C. (2016). Developmental science and executive function. *Current Directions in*

    Psychological Science, *25*(1), 3–7. https://doi.org/10.1177/0963721415622634

Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief

    understanding to emerging math and literacy ability in kindergarten. *Child Development*,

    78(2), 647–63. https://doi.org/ 10.1111/j.1467-8624.2007.01019.x

Boivin, M., & Bierman, L. (2013). School readiness: Introduction to a multifaceted and

    developmental construct. In *Promoting School Readiness and Early Learning:*

    Implications of Developmental Research for Practice (pp. 133–149). Routledge.

Bonino, S., & Cattelino, E. (1999). The relationship between cognitive abilities and social

    abilities in childhood: A research on flexibility in thinking and cooperation with peers.

    International Journal of Behavioral Development, *23*, 19–36.

    https://doi.org/10.1080/016502599383982

Brock, L. L., Rimm-Kaufman, S., Nathanson, L., & Grimm, K. J. (2009). The contributions of

    'hot' and 'cool' executive function to children's academic achievement, learning- related

    behaviors, and engagement in kindergarten. *Early Childhood Research Quarterly*, *24*,

    337–49. https://doi.org/10.1016/j.ecresq.2009.06.001

Bull, R., & Scerif, G. (2001). Executive functioning as a predictor of children's mathematics

    ability: Inhibition, switching, and working memory. *Developmental Neuropsychology*,

    19, 273–93. https://doi.org/10.1207/s15326942dn1903_3

Burns, M. K., Riley-Tillman, T. C., & Rathvon, N. (2017). *Effective school interventions: Evidence-based strategies for improving student outcomes, third edition.* Guilford.

Committee for Children (2011). *Second Step®.* http://secondstep.org/

Ciairano, S., Visu-Petra, L., & Settanni, M. (2007). Executive inhibitory control and cooperative behavior during early school years: A follow-up study. Journal of Abnormal Child Psychology, 35(3), 335–345. doi:10.1007/s10802-006-9094-z

Cooper, J. O., Heron, T. E., & Heward, W. L. (2014). *Applied behavior analysis* (2nd ed.). Pearson.

Dworkin, A. G. (1986). *Teacher burnout in the public schools: Structural causes and consequences for children*. State University of New York Press.

Early Childhood Learning & Knowledge Center & The Office of Head Start (2021). *Head Start Early Learning Outcomes Framework*. https://eclkc.ohs.acf.hhs.gov/school-readiness/article/head-start-early-learning-outcomes-framework

Eisenberg, N., Guthrie, I. K., Fabes, R. A., Reiser, M., Murphy, B. C., Holmgren, R., *et al*. (1997). The relations of regulation and emotionality to resiliency and competent social functioning in elementary school children. *Child Development*, *68*, 295–311. https://doi.org/10.2307/1131851

Ellefson, M. R., Shapiro, L. R., & Chater, N. (2006). Asymmetrical switch costs in children. *Cognitive Development, 21*(2). 108-130. https://doi.org/10.1016/j.cogdev.2006.01.002

Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). https://www.congress.gov/114/plaws/publ95/PLAW- 114publ95.pdf

Fabes, R. A., Eisenberg, N., Jones, S., Smith, M., Guthrie, I., Poulin, R., et al. (1999). Regulation, emotionality, and preschoolers' socially competent peer interactions. *Child Development*, *70*, 432–442. https://doi.org/10.1111/1467-8624.00031

Felver, J. C., & Singh, N. N. (2020). *Mindfulness in the classroom: An evidence-based program to reduce disruptive behavior and increase academic engagement*. New Harbinger Publications.

Felver, J. C., Doerner, E., Jones, J., Kaye, N. C., & Merrell, K. W. (2013). Mindfulness in school psychology: Applications for intervention and professional practice. *Psychology in the Schools*, *50*(6), 531–547. https://doi.org/10.1002/pits.21695

Felver, J. C., Felver, S. L., Margolis, K. L., Kathryn Ravitch, N., Romer, N., & Horner, R. H. (2017). Effectiveness and social validity of the soles of the feet mindfulness-based intervention with special education students. *Contemporary School Psychology*, *21*(4), 358–368. https://doi.org/10.1007/s40688-017-0133-2

Felver, J. C., Frank, J. L., & McEachern, A. D. (2014). Effectiveness, acceptability, and feasibility of the soles of the feet mindfulness-based intervention with elementary school students. *Mindfulness*, *5*(5), 589–597. https://doi.org/10.1007/s12671-013-0238-2

Fitzpatrick, C., & Pagani, L. S. (2012). Toddler working memory skills predict kindergarten school readiness. *Intelligence*, *40*(2), 205–212. https://doi.org/10.1016/j.intell.2011.11.007

High, P. C. & and the Committee on Early Childhood, Adoption, and Dependent Care and Council on School Health. (2008). School readiness. *Pediatrics*, *121*(4), e1008–e1015. https://doi.org/10.1542/peds.2008-0079

Hofmann, W., Schmeichel, B. J., & Baddeley, A. D. (2012). Executive functions and self-regulation. *Trends in Cognitive Sciences, 16*(3), 174-180. https://doi.org/10.1016/j.tics.2012.01.006

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71,* 165-179. https://doi.org/10.1177/001440290507100203

Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry, 4*(1). 33-47.

Klingbeil, D. A., Fischer, A. J., Renshaw, T. L., Bloomfield, B. S., Polakoff, B., Willenbrink, J. B., Copek, R. A., & Chan, K. T. (2017a). Effects of mindfulness-based interventions on disruptive behavior: A meta-analysis of single-case research. *Psychology in the Schools*, *54*(1), 70–87. https://doi.org/10.1002/pits.21982

Klingbeil, D. A., Renshaw, T. L., Willenbrink, J. B., Copek, R. A., Chan, K. T., Haddock, A., Yassine, J., & Clifton, J. (2017b). Mindfulness-based interventions with youth: A comprehensive meta-analysis of group-design studies. *Journal of School Psychology*, *63*, 77–103. https://doi.org/10.1016/j.jsp.2017.03.006

Ledford, J. R., Lane, J. D., & Severini, K. E. (2018). Systematic use of visual analysis for assessing outcomes in single case design studies. *Brain Impairment, 19*(1), 4–17. https://doi.org/10.1017/BrImp.2017.16

Maggin, D. M., Briesch, A. M., & Chafouleas, S. M. (2013). An application of the What Works Clearinghouse standards for evaluating single-subject research: Synthesis of the self-

management literature-base. *Remedial and Special Education, 34*, 44–58.

https://doi.org/10.1177/0741932511435176

Mann, T. D., Hund, A. M., Hesson-McInnis, M. S., & Roman, Z. J. (2017). Pathways to school

readiness: Executive functioning predicts academic and social-emotional aspects of

school readiness. *Mind, Brain, and Education*, *11*(1), 21–31.

https://doi.org/10.1111/mbe.12134

Mattera, S., Rojas, N. M., Morris, P. A., & Bierman, K. (2021). Promoting EF with preschool

interventions: Lessons learned from 15 years of conducting large-scale studies. *Frontiers*

in Psychology, 12, 1-20. https://doi.org/10.3389/fpsyg.2021.640702

McClelland, M. M., & Cameron, C. E. (2012). Self regulation in early childhood: Improving

conceptual clarity and developing ecologically valid measures. *Child Development*

Perspectives, 6(2), 136-142. https://psycnet.apa.org/doi/10.1111/j.1750-

8606.2011.00191.x

McClelland, M. M., Acock, A. C., Piccinin, A., Rhea, S. A., & Stallings, M. C. (2012). Relations

between preschool attention-span persistence and age 25 educational outcomes. *Early*

Childhood Research Quarterly, 28(2), 314-324.

https://doi.org/10.1016%2Fj.ecresq.2012.07.008

McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison,

F.J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary,

and math skills. *Developmental Psychology, 43,* 947–959. https://doi.org/10.1037/0012-

1649.43.4.947

McGraw Hill (2021). *The Incredible Years®.* https://incredibleyears.com/

Meiklejohn, J., Phillips, C., Freedman, M. L., Griffin, M. L., Biegel, G., Roach, A., Frank, J.,

      Burke, C., Pinger, L., Soloway, G., Isberg, R., Sibinga, E., Grossman, L., & Saltzman, A.

      (2012). Integrating mindfulness training into K-12 education: Fostering the resilience of

      teachers and students. *Mindfulness*, *3*(4), 291–307. https://doi.org/10.1007/s12671-012-

      0094-5

Minnesota Department of Education (2017). *Early Childhood Indicators of Progress.*

      https://education.mn.gov/MDE/dse/early/highqualel/ind/domain/

Mitteer, D. R., Kranak, M. P., Fuhrman, A. M., Greer, B. D. (2023). Creating graphs and visual

      data displays. In J. K. Luiselli (Ed.), *Applied behavior analysis advanced guidebook: A*

      manual for profressional practice (2nd ed., pp. 107-131). Academic Press.

Morrison, F. J., Ponitz, C. C., & McClelland, M. M. (2010). Self-regulation and academic

      achievement in the transition to school. In S. D. Calkins & M. A. Bell (Eds.), *Child*

      development at the intersection of emotion and cognition. (pp. 203–224). American

      Psychological Association. https://doi.org/10.1037/12059-011

Ponitz, C. C., McClelland, M. M., Matthews, J. S., & Morrison, F. J. (2009). A structured

      observation of behavioral self-regulation and its contribution to kindergarten outcomes.

      Developmental Psychology, 45(3). 605-619. https://doi.org/10.1037/a0015365

Qu, L. & Ong, J. Y. (2015). Impact of reminders on children's cognitive flexibility, intrinsic

      motivation, and mood depends on who provides the reminders. *Frontiers in Psychology,*

      6. 1-14. http://doi.org/10.3389/fpsyg.2015.01904

Razza, R. A., & Raymond, K. (2015). Executive Functions and School Readiness. In S. Robson

      & S. Flannery Quinn (Eds.), *The Routledge International Handbook of Young Children's*

Thinking and Understanding (1st ed.). Routledge.

https://doi.org/10.4324/9781315746043

Razza, R. A., Bergen-Cico, D., & Raymond, K. (2015). Enhancing preschoolers' self-regulation

via mindful yoga. *Journal of Child and Family Studies*, *24*(2), 372–385.

https://doi.org/10.1007/s10826-013-9847-6

Savina, E. (2021). Self-regulation in preschool and early elementary classrooms: Why it is

important and how to promote it. *Early Childhood Education Journal, 49*(3), 493-501.

https://doi.org/10.1007/s10643-020-01094-w

Scruggs, T. E., & Mastropieri, M. A. (1998). Synthesizing single subject research: Issues and

applications. *Behavior Modification, 22*, 221-242.

https://doi.org/10.1177/01454455980223001

Scott-Little, C., Lesko, J., Martella, J., & Milburn, P. (2007). Early learning standards: Results

from a national survey to document trends in state level policies and practices. *Early

Childhood Research & Practice*, *9*(1), 1–23.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy

for depression: A new approach to preventing relapse.* Guilford Press.

Semple, R. J., & Lee, J. (2011). *Mindfulness-based cognitive therapy for anxious children: A

manual for treating childhood anxiety*. New Harbinger Publications.

Shapiro, S. L., Lyons, K. E., Miller, R. C., Butler, B., Vieten, C., & Zelazo, P. D. (2015).

Contemplation in the classroom: A new direction for improving childhood education.

Educational Psychology Review, *27*(1), 1–30. https://doi.org/10.1007/s10648-014-9265-3

Singh, N. N., Wahler, R. G. Adkins, A. D., Myers, R. E. (2003). Soles of the feet: A

mindfulness-based self-control intervention for aggression by an individual with mild

mental retardation and mental illness. *Research in Developmental Disabilities, 24*. 158-

169. http://doi.org/10.1016/S0891-4222(03)00026-X

Singh, N.N., Lancioni, G.E., Joy, S.D.S., Winton, A.S.W., Sabaawi, M., Wahler, R.G., & Singh,

J. (2007). Adolescents with conduct disorder can be mindful of their aggressive

behavior. *Journal of Emotional and Behavioral Disorders*, *15*, 56-63.

https://doi.org/10.1177/10634266070150010601

Singh, N.N., Lancioni, G.E., Manikam, R. Winton, A.S.W., Singh, A.N.A., Singh, J. & Singh,

A.D.A. (2011a). A mindfulness-based strategy for self-management of aggressive

behavior in adolescents with autism. *Research in Autism Spectrum Disorders, 5*, 1153-

1158. https://doi.org/10.1016/j.rasd.2010.12.012

Singh, N.N., Lancioni, G.E., Singh, A.D.A., Winton, A.S.W., Singh, A.N.A., & Singh, J.

(2011b). Adolescents with Asperger Syndrome can use a mindfulness-based strategy to

control their aggressive behavior. *Research in Autism Spectrum Disorders, 5*, 1103-

1109. https://doi.org/10.1016/j.rasd.2010.12.006

Tourangeau, K., Nord, C., Lê, T., Sorongon, A.G., Hagedorn, M.C., Daly, P., and Najarian, M.

(2015). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-

K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic

Codebook, Public Version* (NCES 2015-074). U.S. Department of Education.

Washington, DC: National Center for Education Statistics.

U.S. Department of Education. (2015). *A Matter of Equity: Preschool in America*. National

Center for Education Statistics.

Vygotsky L. S. (1978). *Mind in Society.* Cambridge University Press.

Webster-Stratton, C., Reid, M. J., & Hammond, M. (2004). Treating children with early-onset

    conduct problems: Intervention outcomes for parent, child, and teacher training. *Journal*

    of Clinical Child & Adolescent Psychology, 33(1). 105-124.

    https://doi.org/10.1207/S15374424JCCP3301_11

Wertheimer, R., Croan, T., Anderson Moore, K., & Hair, E. C. (2003). Attending kindergarten

    and already behind: A statistical portrait of vulnerable young children. *Child Trends*,

    2003 (20), 1–8.

West, J., Denton, K., & Germino-Hausken, E. (2000). *America's Kindergartners (NCES 2000–*

    070). U.S. Department of Education.

Williams, P. G., & Lerner, M. A. (2019) School readiness. *Pediatrics, 144*(2). 1-15.

    https://10.1542/peds.2019-1766

Zelazo, P. D., & Lyons, K. E. (2012). The potential benefits of mindfulness training in early

    childhood: A developmental social cognitive neuroscience perspective. *Child*

    Development Perspectives, *6*(2), 154–160. https://doi.org/10.1111/j.1750-

    8606.2012.00241.x

Zenner, C., Herrnleben-Kurz, S., & Walach, H. (2014). Mindfulness-based interventions in

    schools: A systematic review and meta-analysis. *Frontiers in Psychology, 5.*

    https://doi.org/10.3389/fpsyg.2014.00603

Zoogman, S., Goldberg, S. B., Hoyt, W. T., & Miller, L. (2015). Mindfulness interventions with

    youth: A meta-analysis. *Mindfulness*, *6*(2), 290–302. https://doi.org/10.1007/s12671-013-

    0260-4

Appendix A

<h2 align="center">PARENT CONSENT FORM</h2>

Please print CLEARLY

Name of parent or guardian: _____

I am the legal guardian of_____ . I consent for her or him to participate in a research project on children's experiences related to dealing with stress. Jane Doe, Ph.D. from the xxx Department at Minnesota State University Mankato is director of the project. Participation in this study includes the following commitment for my child and me:

1) Read and sign this consent form.

2) My child will complete questionnaires about his or her thoughts, feelings, behaviors, and experiences related to stress, mental health, and social support (takes about 45 minutes).

Procedures

My child will be asked questions about his or her thoughts, feelings, behavior, and experiences. You can contact Dr. Doe at 389-xxxx or jane.doe@mnsu.edu about any concerns you have about this project 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.

Confidentiality

All information obtained in this project will be kept confidential by the staff of this research project. All information will be stored in a locked file cabinet at Minnesota State University, Mankato. It can be viewed only by authorized research staff members (*name them*). No information about my child will be released and no names will be recorded other than on the consent forms.

Risks and Benefits

The risks of participating in this study are no more than those in normal daily life. You will be given $5 compensation for my and my child's time. You can request a copy of the study's results (but not your child's results), which would be mailed to you after the end of the study. Participating in this study may help the researchers better understand children's resiliency.

Right to Refuse Participation

Participation in this project is voluntary and you and your child have the right to stop at any time. If you would like your child to no longer participate in the research, contact me at the

Amended 09/06/2019 MH   Initial here to indicate you have read this page._____

Appendix A (continued)

e-mail address or phone number given above. My child can choose to skip any questions she or he does not want to answer. My child can stop participating by saying she or he does not want to be in the study any more. Your decision whether or not to participate will not affect your relationship with Minnesota State University, Mankato, and refusal to participate will involve no penalty or loss of benefits.

Your signature indicates that you are at least 18 years of age and have received a copy of the consent form to keep.

Print your name:

Signed:

Date:

Minnesota State University, Mankato IRBNet Id#:

Date of Minnesota State University, Mankato IRB approval:

Appendix B

Efficient Functional Behavior Assessment: The Functional Assessment Checklist for Teachers and Staff: Part A

Step 1
Student/ Grade: _____   Date: _____
Interviewer: _____   Respondent(s): _____

Step 2
Student Profile: Please identify at least three strengths or contributions the student brings to school.
_____
_____

Step 3
Problem Behavior(s): Identify problem behaviors

___ Tardy	___ Fight/physical Aggression	___ Disruptive	___ Theft
___ Unresponsive	___ Inappropriate Language	___ Insubordination	___ Vandalism
___ Withdrawn	___ Verbal Harassment	___ Work not done	___ Other _____
	___ Verbally Inappropriate	___ Self-injury	

Describe problem behavior: _____

Step 4
Identifying Routines: Where, When and With Whom Problem Behaviors are Most Likely.

Schedule (Times)	Activity	Likelihood of Problem Behavior	Specific Problem Behavior
		Low 1 2 3 4 5 High 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	

Step 5
List the Routines in order of Priority for Behavior Support: Select routines with ratings of 5 or 6. Only combine routines when there is significant (a) similarity of activities (conditions) and (b) similarity of problem behavior(s). Complete the FACTS-Part B for each of the prioritized routine(s) identified.

	Routines/Activities/Context	Problem Behavior(s)
Routine # 1		
Routine # 2		
Routine # 3		

Adapted by C. Anderson & C. Borgmeier (2007) from March, Horner, Lewis-Palmer, Brown, Crone & Todd (1999)

Appendix B (continued)

Efficient Functional Behavior Assessment: The Functional Assessment Checklist for Teachers and Staff: Part B

Step 6   **Routine/Activities/Context:** Which routine(only one) from the FACTS-Part A is assessed?

Routine/Activities/Context	Problem Behavior(s)

Step 7   **Provide more detail about the problem behavior(s):**

What does the problem behavior(s) look like?

How often does the problem behavior(s) occur?

How long does the problem behavior(s) last when it does occur?

What is the intensity/level of danger of the problem behavior(s)?

Step 8   **ANTECEDENTS: TRIGGERS AND SETTING EVENTS**

What are the events that predict when the problem behavior(s) will occur? (Predictors).
Identify the trigger generally
1. **In this routine, what happens most often just before problem behavior? _____**
2. **If you put this trigger in place 10 times, how often would it result in problem behavior? _____**
3. **Does problem behavior ever happen when (opposite of trigger or trigger absent)?**

Triggers		
____Tasks	____Reprimands	____Transitions
____Unstructured time	____Structured/non-academic activities	____Isolated, no-one around

Identify specific features of the trigger		
If tasks (e.g., group work, independent work, small-group instruction, lecture)…	Describe the task in detail (e.g., duration, ease of task for student), what features of it likely are aversive to the student and why is this hypothesized?	
If unstructured time…	Describe the setting, activities, and who is around	
If reprimand…	Describe who delivers the reprimand, what is said, and what the purpose of the correction is	
If structured, nonacademic activities	Describe the context, who is around, what activities are going on, what behaviors are expected?	
If transitions	Describe the activity that is being terminated and the one that is being transitioned to. Identify whether any of the activities are highly preferred or non-preferred, which are structured versus non-structured.	
If isolated	Where did the behavior occur? What features of the environment might be relevant?	

Appendix B (continued)

Step 9   <u>Are setting events relevant?</u>
1. **Is there something that, when present makes it more likely that the trigger identified above sets off the behavior?**
2. **If yes, is this event present sometimes and absent others? Does the behavior occur only when the event is present?**

Setting Events		
____Correction/failure in previous class	____Conflict at home	____Hunger
____Peer conflict	____Correction from adult earlier in day	____Lack of sleep
____Change in routine	___Homework/assignment not completed	___Medication (missed or taken)

Step 10   **CONSEQUENCES** _____

What consequences appear most likely to maintain the problem behavior(s)?

<u>Identify the consequence generally</u>
In the routine identified, when the trigger occurs and problem behavior happens, what occurs next?
1. **What do you do? What do other students do? What activities happen or stop happening?**
2. **Narrow it down: Take each consequence identified above:**
   a. **Would the behavior still happen if that consequence couldn't occur (e.g., if peer attention, no other students were around?; if your attention, would the behavior still occur if you were not around? If escape, would the behavior still occur if the task was easier?)**
   b. **Of the last 10 times you saw the behavior, how often did this consequence occur?**

| Things that are Obtained		Things Avoided or Escaped From	
___ adult attention	Other: _____	___ hard tasks	Other: _____
___ peer attention	_____	___ reprimands	_____
___ activity		___ peer negatives	_____
___ money/things	_____	___ physical effort	_____
		___ adult attention	_____

<u>Identify specific features of the Consequence</u>

Identify specific features of the consequence		
If adult or peer attention is obtained or avoided.	Define who delivers attention, what they say, and how long the attention typically lasts. What does the student do following this attention—is their a back-and-forth that occurs? Does behavioral escalation occur?	
If an activity or request follows or is removed	Describe the specific activity including who else is present, what the activity consists of, and how long it lasts.	
If tangible items are obtained or removed	Describe the specific item(s) obtained including who else is present and how long the student has access to the item.	
If sensory stimulation possibly occurs or is removed	Describe the context, who is around, what activities are going on, what behaviors are expected?	

Appendix B (continued)

SUMMARY OF BEHAVIOR
Identify the summary that will be used to build a plan of behavior support.

Step 11

| Setting Events | → | Trigger | → | Behavior | → | Consequence |
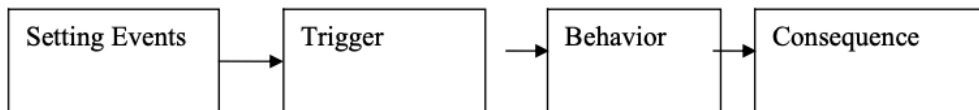
How confident are you that the <u>Summary of Behavior</u> is accurate?

Not very confident					Very Confident
1	2	3	4	5	6

March, Horner, Lewis-Palmer, Brown , Crone, Todd, & Carr (2000)   4/24/00

Appendix C

Soles of the Feet	Caitlin Moen	IRBNet ID #1960766-1

Student Assent Script

Student's Name _____

My name is Caitlin Moen, and I am from Minnesota State University, Mankato and work at Jefferson Elementary here in New Ulm. I would like to ask you some questions about things that make you happy, things you're good at, and even some things that might be frustrating or make you mad.

We will work together to write down your answers and take time participating in an activity that helps people stay calm and happy when they are happy or get back to feeling calm when they get mad or sad. We will use the things that make *you* happy and mad to figure out how to stay calm or calm down when needed.

Your parent(s) or guardian(s) and teacher have said that it is okay for you to answer these questions and participate in the activities. The questions and activities will take 20-30 minutes and we will meet every school day for five days total. If you decide that you do not want to finish all the questions or complete the activity, just tell me and I will take you back to your class. You do not have to do these questions. If you do not want to answer any of the questions, just tell me and I will take you back to class now. You can skip any questions you do not want to answer.

These questions are not a test and there are no wrong answers. We will practice the activity many times this week, so it's okay if you don't get it the first time. You will not get anything for answering the questions. After we are done, I will thank you, and take you back to class.

Tell your teacher or parents, if you are worried or unhappy about anything that happens during the questions.

_____   _____

Signature   Date

(Assent forms do not need to be signed. If you wish you can have the child sign)

IRBNet Id Number: 1960766-1

Date of Minnesota State University, Mankato IRB approval:

Appendix D

Observation Form

Date: ____/____/2023 M T W Th F	Observer(s): IOA? Y or N	Start Time:
Student:	Circle One: Baseline Training Post-Intervention Reminder Visual	End Time:

On-task behavior: The student's head and body oriented toward the target task while actively attending to assigned material, **OR** the student's head and body oriented toward the target task while passively attending to assigned classroom and included behaviors such as listening to a lecture, reading assigned material silently, and looking at the teacher during instruction.

Off-task behavior: Disruptive: Defined as either motor activity not directly associated with an assigned academic task (e.g., getting out of seat to walk around the room), verbalizations not related to an assigned academic task (e.g., making noises during silent reading or talking to another student during an independent activity). **Non-disruptive: passively** not attending to an assigned academic task for **at least three consecutive seconds** within a given 15-second interval (e.g., staring out the window or watching other peers during a silent reading activity).

Directions: During the last second of each 15-second interval, mark with an "X" whether the target student was on-task or off-task.

Interval	1	2	3	4	5	6	7	8	9	10	11	12
On-task												
Off-task												

Interval	13	14	15	16	17	18	19	20	21	22	23	24
On-task												
Off-task												

Interval	25	26	27	28	29	30	31	32	33	34	35	36
On-task												
Off-task												

Interval	37	38	39	40	41	42	43	44	45	46	47	48
On-task												
Off-task												

Interval	49	50	51	52	53	54	55	56	57	58	59	60
On-task												
Off-task												

Interval	61	62	63	64	65	66	67	68	69	70	71	72
On-task												
Off-task												

Interval	73	74	75	76	77	78	79	80
On-task								
Off-task								

% on-task: _____/Total observation intervals = _____%

Appendix E

Post-Implementation Social Validity Interview for Teachers

1. What were your initial thoughts regarding this intervention when you first began to learn about it? Did you have any immediate concerns or questions?

2. Are the types of problems addressed by the SOF program important?

3. Overall, is the amount of time students spent out of class to learn the intervention reasonable?

4. Was there anything you found challenging about this intervention being implemented with your student?

5. Do you feel the SOF program was effective for this student?

6. Would you recommend this intervention to other teachers?
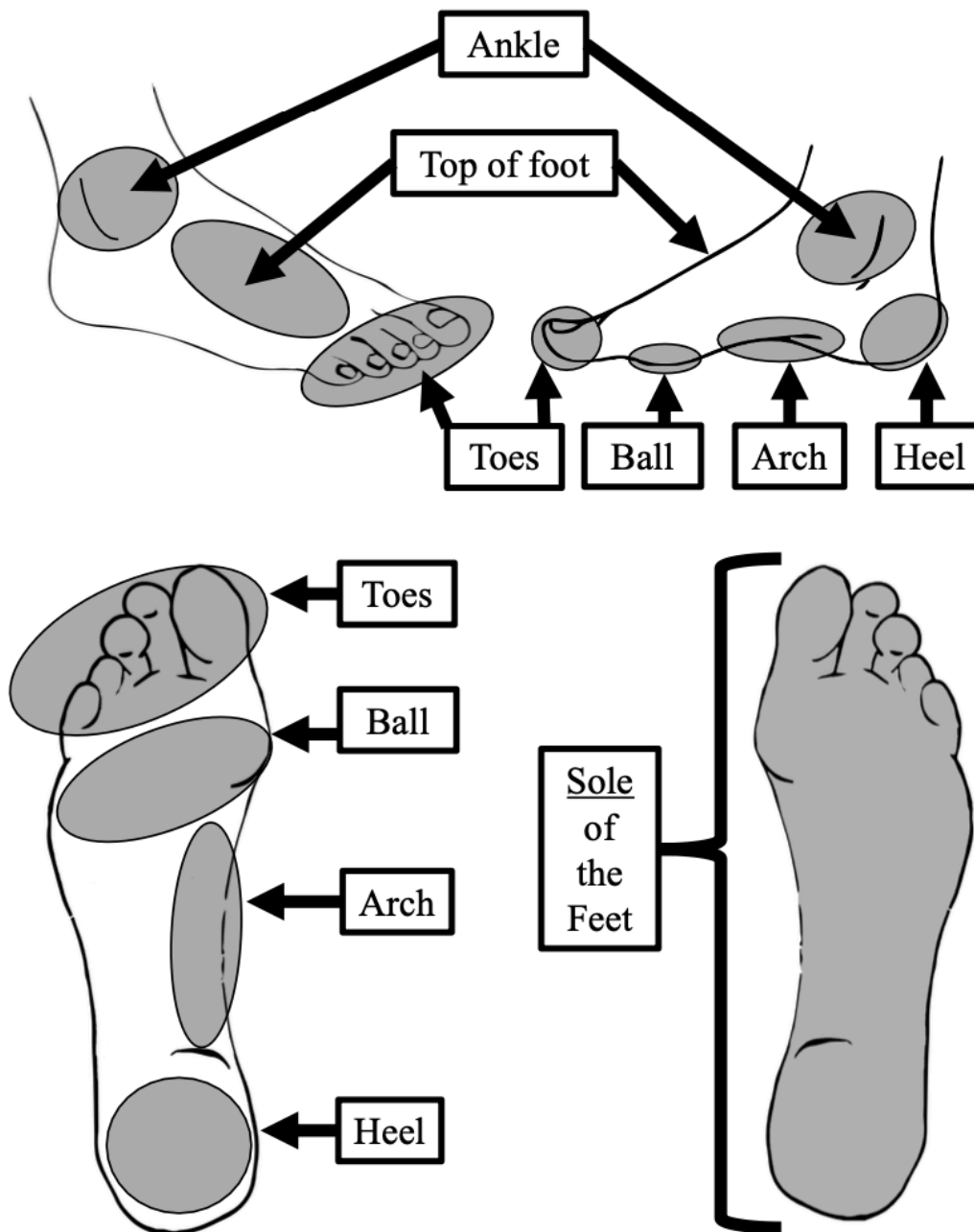
Appendix F

Children's Intervention Rating Profile – Modified

Item	Yes	No
Soles of the Feet is fair		
Doing Soles of the Feet is too hard		
Doing Soles of the Feet might cause problems with my friends		
There are better ways to deal with feelings than Soles of the Feet		
Soles of the Feet would be good to use with other students		
I liked doing Soles of the Feet		
I think Soles of the Feet will help me do better in school		

Appendix G

Knowing Your Feet

Directions: Look at the shaded areas to learn about the different parts of your feet. The entire bottom of your feet is called the <u>sole</u> of the feet.
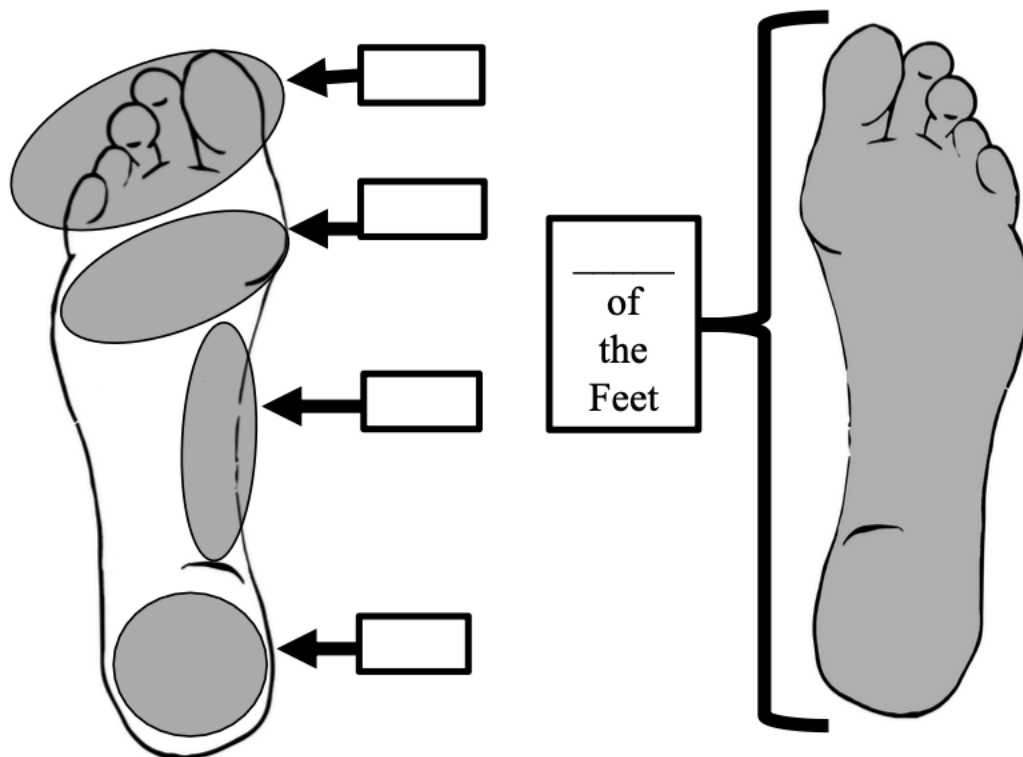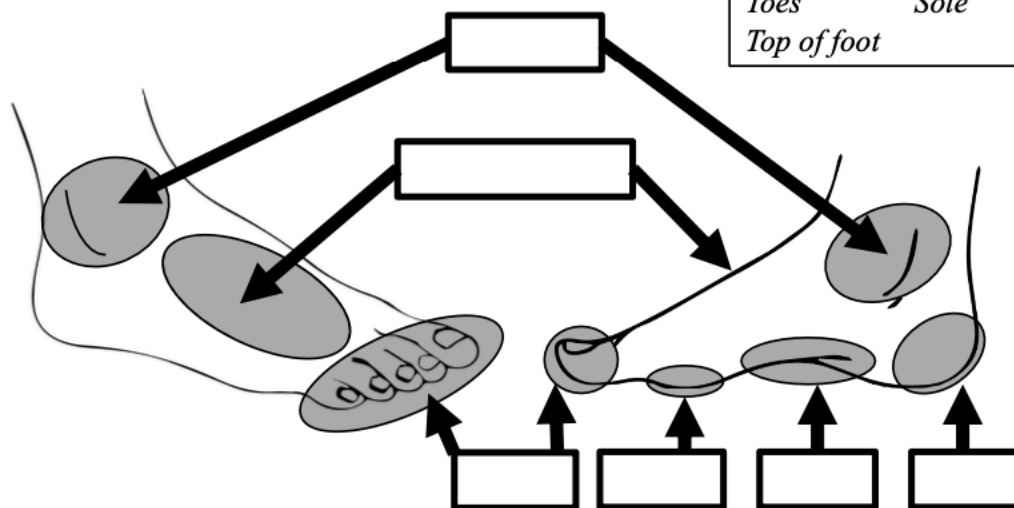
Appendix G (continued)

Knowing Your Feet

Directions: Use the word bank to fill in the blank spaces.

Word Bank	
Ankle	*Arch*
Ball	*Heel*
Toes	*Sole*
Top of foot	

___ of the Feet

Appendix G (continued)

Belly Breathing Handout

Directions: Follow these steps to practice belly breaths:

1. *Sit up and place one hand on your belly.*
2. *Imagine breathing into and out of your belly.*
3. *Feel your belly move with your breath.*
4. *Breathe* **low** *into your belly.*
5. *Breathe* **slow** *into your belly.*
6. *Continue to breathe* **low and slow** *into your belly.*

My Soles of the Feet Routine

1. *To begin, sitting up straight, placing your feet flat on the floor, allowing your eyes to close if this feels comfortable…*

2. *Placing one hand on your belly, and beginning to pay attention to your breath coming into and out of your belly… Noticing your breathing… Noticing your belly moving with your breath… Breathing low and slow into your belly…*

3. *Now, quickly shift the focus of your attention to your feet…*

4. *All of your attention is on your feet…*

5. *Wiggling and noticing your toes…*

6. *Putting attention on the ball of your feet…*

7. *Focusing on the arches of your feet…*

8. *Going to the heel of your feet…*

9. *Putting your attention on the soles of your feet…*

10. *Feeling the entire foot…*

11. *Continuing to stay in your feet just by wiggling your toes and noticing your feet…*

12. *Now, slowly opening your eyes, and returning to your class…*

Appendix G (continued)

Eliciting Emotions Support Sheet

To trigger a strong emotion in response to remembering a past event, it is very useful to incorporate multiple sensory modalities to elicit a detailed memory. Use this sheet to help record feedback from students as they recall an experience that you will use to practice Soles of the Feet on. This sheet can be helpful to record certain pieces of information when reciting the experience back to students, or for practice using this type of questioning. Keep your questions to pure fact-finding and pose them in a neutral manner—you are only looking for specific details that you can use later on, not conducting a psychotherapy session. Remember to record the student's verbatim response whenever possible.

Overview of memory

Basics of the event (What was happening generally? Where did this happen? When?)

What happened that made the student feel a strong emotion?

Persons attending (Who was there at the event? What did they say?)

What was the moment they remember feeling *the most*?

Details of memory

Sight (What do they remember seeing? What clothes were people wearing?)

Smells (What smells do they remember?)

Sounds (What sounds do they remember? Talking, laughing, yelling? What did people say?)

Touch (What was the weather like? Hot or cold temperature?)

Taste (If food was involved, what did they eat?)

Mind (Do they remember any specific thoughts? Any feelings or emotions?)

Appendix G (continued)

Identifying Triggers Worksheet

A trigger is anything that happens *before* an event that *causes* an event to happen. Use this worksheet to identify specific triggers for the student's unpleasant emotions. After creating this list, discuss with the student the most powerful and frequently occurring triggers that will then become the focus for their practice. Remember to be as specific as possible.

External Triggers

Other person's action or speech:

Situation with friends:

Situation with teachers:

Situation with family:

Other events:

Internal Triggers

Thoughts:

Feelings:

Physical sensations:

Memories:

Other experiences:

My Biggest Triggers are…

(1)

(2)

(3)

Using Soles of the Feet in Daily Life

My Biggest Triggers

   (1)

   (2)

   (3)

Situations where SoF can be useful

In school

   When?   *Where?*

   With whom?

At home

   When?   *Where?*

   With whom?

Other

   When?   *Where?*

   With whom?

These are the best times for me to use Soles of the Feet:

	Trigger (Internal and external)	Situation (When? Where? With whom?)
1		
2		
3		

Appendix G (continued)

Soles of the Feet Sticker Template

Appendix H

Structural—Procedural	0 Not at all or very little. <10%	1 Somewhat or moderately. 10% to 90%	2 Fully or very much. >90%
Reviewed previous session (n/a Session 1)	This element was not implemented in any substantive way.	This element was partially implemented; some aspect was not covered.	This element was fully implemented; followed program completely or nearly completely.
Reviewed between-session practice (n/a Session 1)	This element was not implemented in any substantive way.	This element was partially implemented; some aspect was not covered.	This element was fully implemented; followed program completely or nearly completely.
Introduced session	This element was not implemented in any substantive way.	This element was partially implemented; some aspect was not covered.	This element was fully implemented; followed program completely or nearly completely.
Delivered main session content: Session 1 Introduced mindful breathing and somatic foot exercises. Session 2 In vivo exposure and practice with pleasant experience. Session 3 In vivo exposure and practice with unpleasant experience. Session 4 In vivo exposure and practice with antecedent to unpleasant experience. Session 5 Made plan for future SoF practice.	Main session content was not delivered in a substantive way.	Main session content was somewhat delivered; some aspect of this element was not covered.	Main session content was delivered fully; followed program completely or nearly completely.
Closed by reviewing session content.	This element was not implemented in any substantive way.	This element was partially implemented; some aspect was not covered.	This element was fully implemented; followed program completely or nearly completely.
Made a plan for between-session practice.	No plan was made or mentioned for between-session practice.	A poorly defined plan was mentioned for between-session practice; not concrete (e.g., only said to "practice SoF" without specifications).	A clear plan was made for between-session practice; followed program completely or nearly completely.
Distributed and utilized handouts.	Handouts were not distributed or utilized.	Handouts were distributed but not utilized and/or discussed.	Handouts were distributed and utilized and/or discussed.
Practiced SoF routine at least twice during session.	SoF routine was not practiced.	SoF routine was practiced once.	SoF routine was practiced twice or more.

Structural Total (out of 16)

Appendix H (continued)

	Instructional—Pedagogical		
	0 Not at all or very little. <10%	**1** Somewhat or moderately. 10% to 90%	**2** Fully or very much. >90%
Engaged students in learning through providing examples of applying material to instructors' own lives and/or that of student(s).	Provided no example.	Provided one example.	Provided two or more examples.
Managed classroom behavior by redirecting negative behavior and reinforcing on-task behavior.	Instructor did not redirect negative behavior or reinforce on-task behavior.	Only once did instructor redirect negative behavior or reinforce on-task behavior.	Instructor redirected negative behavior or reinforced on-task behavior more than once.
Modeled mindful qualities by treating human experiences (both instructor's and student's) with accepting and nonjudgmental attitude.	Responded to reported experiences more than once with nonacceptance or judgment, for example by labeling experience as correct/incorrect, as right/wrong, as good/bad, or as something that should or should not have happened.	Responded to reported experiences once with nonacceptance or judgment, for example by labeling experience as correct/incorrect, as right/wrong, as good/bad, or as something that should or should not have happened.	Never responded to reported experiences with nonacceptance or judgment, for example by labeling experience as correct/incorrect, as right/wrong, as good/bad, or as something that should or should not have happened.
Instructor checked for understanding of material.	Did not stop to check for understanding during session.	Cursory check for understanding or assessed for understanding with a closed question such as "Do you understand this?"	Thoroughly checked for understanding using open-ended questions, by having subject demonstrate procedure, or by facilitating dialogue to ensure understanding.

	Instructional—Engagement		
Student(s) participated in activities.	Student(s) did not seem to be engaged in activity; student (or in group, most students) appeared to not practice during sessions.	Student(s) somewhat engaged in activity; student (or in group, about half of students) appeared to not practice during sessions.	Student(s) highly engaged in activity; student (or in group, most students) appeared to practice during sessions.
Student(s) participated in discussion.	Student (in a group, only one or two students) very reluctantly (or not at all) answered questions or engaged in discussion.	Student (or in a group, about half of students) only some of the time answered questions or engaged in discussion.	Student (or in a group, most students) answered questions or engaged in discussion during majority of session.
Student(s) practiced between sessions.	Student did not practice between session. Few among the group (50%) practiced between sessions.	Student practiced during some days (50%) between sessions.	Student practiced most days (>50%) between sessions. Most of the group (>75%) practiced most days (>50%) between sessions.

Instructional Total (out of 14)

Observational Notes/Comments:

Appendix I

Figure 1

Percentage of Academic Engagement during Baseline, Training, SOF Independent, and SOF Reminder Conditions