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IMPLEMENTING THE MINDFULNESS-BASED KINDNESS CURRICULUM IN AN INCLUSIVE SETTING: EFFECTS ON PROSOCIAL BEHAVIOR

Emily Cary
Syracuse University, emilylkoelmel@gmail.com

Abstract

Low rates of prosocial behavior are associated with poor academic, emotional, and behavioral outcomes, including physical aggression, externalizing problems, criminal justice convictions, lower academic achievement, and more peer rejection. Using a cluster randomized control trial, this study examined the effects of the mindfulness-based *Kindness Curriculum* (*N* = 26), compared to a matched control condition consisting of a social and emotional learning (SEL) curriculum, *Merrell's Strong Start* (*N* = 20). Outcome measures included the Strengths and Difficulties Questionnaire and the Head Shoulders Knees and Toes task, which are measures of prosocial behavior including self-regulatory skills. These assessments were administered to 5 to 7 year old children pre- and post-intervention via a remote platform. Due to Covid-19, interventions were delivered virtually, and intervention acceptability of the adapted virtual curricula was assessed with students using the Kids Intervention Profile (KIP) questionnaire, and with teachers using the Intervention Rating Profile – 15 (IRP-15). Additional qualitative questions were used to analyze the strengths and weaknesses of the intervention and its feasibility for students with disabilities.

Results of two-way Repeated-Measures ANOVAs indicated that there were no statistically significant interactions between time and group assignment in prosocial behavior or self-regulation. Both curricula were acceptable to teachers and students, and led to student-perceived increases in SEL skills. Findings suggest that the Kindness Curricula is feasible and acceptable for students with a range of abilities, and can be successfully adapted to a virtual platform. Future research is warranted to replicate the benefits and efficacy of all 24 sessions completed in a larger sample of students.

Keywords: mindfulness, prosocial, kindness, socio-emotional

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by

Emily Lynne Cary

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Prosocial Behavior

Low rates of prosocial behavior are associated with poor academic, emotional, and behavioral outcomes, warranting identification of interventions that enhance prosocial behavior early in development. Prosocial behavior at the simplest level is engaging in any action that benefits others (Schroeder & Graziano, 2015). Prosocial behavior exists on a spectrum, with high levels of prosocial behavior including engaging in more sharing, helping, kindness, complementing others, and having consideration for others' feelings. Low rates of prosocial behavior can be alternatively characterized by behaviors that occur in the absence of prosocial behavior (i.e., children who score in the lowest percentile in prosocial behavior scales) and consequently tend to include more aggressive and selfish behaviors, such as refusing to share or not helping other children when they need help (Goodman, 1997; Obsuth et al., 2015).

Rates of prosocial behavior during childhood are a strong predictor of later outcomes. Children exhibiting more prosocial behaviors at ages 4 and 5 have less externalizing problems a year later (Hastings et al., 2000), whereas youth exhibiting low rates of prosocial behavior are more likely to display externalizing behavioral problems including physical aggression later in life (Chen et al., 2000; Nantel-Vivier et al., 2014). Additionally, low rates of prosocial behavior at age 8 are highly correlated ($r = 0.75$) with criminal justice convictions by age 30 (Eron & Huesmann, 1984). Prosocial behavior is also highly related to school success; prosocial behavior in 3rd grade accounts for about 35% of variance in academic achievement by 8th grade (Caprara et al., 2000), and exhibiting above average prosocial behavior at age 6 increases the likelihood of graduating high school by age 20 (Vitaro et al., 2005).

Prosocial behavior is also intricately linked with social relationships. Early increases in prosocial behavior are associated with better social adjustment, including higher peer acceptance and lower peer rejection (Crick, 1996). Preschoolers who engage in more prosocial behaviors are then more likely to receive prosocial behavior from peers, whereas students with aggressive behaviors are less likely to be on the receiving end of prosocial behavior from others and are more likely to be targets of peer aggression (Persson, 2005). In this way, prosocial behavior bolsters stronger interpersonal relationships, which are then significantly implicated in the maintenance of health and longevity (Cohen et al., 2004; Hoge et al., 2013). In other words, prosocial behavior enhances social support, which then helps one maintain regulation of emotional, behavioral, and cognitive systems, and ultimately leads to reduced stress and improved mental and physical health (Cohen, 1988) whereas negative correlates of prosocial behavior (i.e., lack of social support, bullying, and peer aggression) lead to reduced mental and physical health.

In sum, prosocial behavior is a predictive variable of stress, the quality of one's social relationships, physical health, longevity, academic achievement, bullying, criminal activity, and externalizing and internalizing symptoms. Prosocial behavior can be measured and targeted early in development, such as during early childhood (Schroeder & Graziano, 2015), and the benefits of enhancing prosocial behaviors can be seen in biological, behavioral, and social domains (Hoge et al., 2013). However, there is limited research investigating targeted interventions that bolster prosocial behavior early in development, and no research to-date has examined the effects of teaching prosocial behavior to students with disabilities in early inclusive environments in the context of tier 1 preventative interventions.

Prosocial Behavior and Inclusive Education

Prosocial behavior – including social and interpersonal abilities – is necessary for developing friendships and other relationships. Teaching prosocial behavior is especially important in inclusive classrooms – general education classrooms in which children with and without disabilities learn together – because larger individual differences in learning ability and performance can potentially lead to peer conflict (e.g., teasing and bullying) that could be mitigated by the explicit promotion of more kind and accepting behaviors. Inclusive classrooms are increasingly commonplace in contemporary school settings. In 1990, of the students who qualified as having a disability under Individuals with Disabilities Education Act (IDEA) - the law that ensures that all students with disabilities have access to a free and appropriate education - only 33% spent most of their day in inclusive mainstream education classes, with the majority of students learning in separate special education classes (i.e., segregated classrooms). In 2000 this increased to 47%, and in the latest review in 2018, about 64% of students with disabilities were in mainstream classes most of the day (Hussar et al., 2020). Inclusive classrooms are often more effective than segregated classrooms, with benefits to students with and without disabilities, especially with differentiated teaching and supports (Jackson et al., 2008; Morningstar et al., 2015; Rafferty et al., 2003).

However, a common problem in inclusive classrooms is that students with disabilities, whether visible or invisible, experience more bullying and victimization – including physical and verbal aggression, teasing, threats, and peer rejection – than non-disabled peers, and bullying is often directly attributed to one's disability (Carter, 2006). Teachers have indicated that some students with mild disabilities (e.g., speech language impairment, mild intellectual disability, learning disability) may not be as socially integrated and adjusted as typically developing peers

in inclusive classrooms (Reed et al., 2011). In inclusive preschool settings, 25-33% of preschoolers with disabilities experiencing peer victimization, while only about 10% of typically developing peers experience peer rejection and victimization (Odom et al., 2006; Son et al., 2012). Bullying then has adverse effects on later outcomes (Kochenderfer & Ladd, 1996; Vlachou et al., 2011). For example, one study found that 94% of children with autism ages 4 to 17 face peer victimization, with a peak in assaults and bullying at age 6 (Little, 2002), and higher rates of bullying were significantly associated with school refusal and absenteeism (Ochi et al., 2020). By age 3, most children have developed sufficient empathy to be able to purposefully include and exclude peers, and children with disabilities that affect social problem solving and emotion regulation (e.g., developmental delays, autism) are often more likely to be excluded (e.g., peers will not choose to play with them when having the option of playing with a typically developing peer; Odom et al., 2006; Silton, 2020). Promoting prosocial skills can help enhance social integration and relationships and reduce bullying (McCarty et al., 2016).

In sum, this cumulative literature emphasizes the problematic stigma that children with a range of disabilities may experience in the classroom. Additionally, the large increase in inclusive education implicates a wider diversity of behavioral and social issues that teachers need to address and warrants class-wide interventions that enhance social and emotional growth for all students to enhance the inclusivity and supportive culture of classrooms (Rafferty & Griffin, 2005). As such, research-based interventions for promoting kindness in classrooms may be highly beneficial in inclusive settings (Silton, 2020). Thoughtful classroom practices that can enrich kind classroom communities and increase kind behaviors may enhance positive integration in classrooms composed of heterogenous student needs and behaviors. Teaching prosocial behaviors at the class wide level can enhance empathy, kindness, awareness, and

conflict resolution, which can then help to reduce bullying and foster a supportive environment for all students.

Additionally, there are varying degrees of prosocial behavior at preschool entry. There are individual differences in prosocial behavior based on internal and environmental factors including parenting, temperament, personality, and gender, from which prosocial behavior varies from the interaction between the person and situation (Schroeder & Graziano, 2015). Given the wide range of prosocial behavior, it is important to find ways to address academic and social concerns early on at a systematic level, so that all students have the opportunity for socioemotional growth in an inclusive and caring environment. To that end, there also needs to be methods of enhancing the classroom social environment and trust among students. This is especially important given the diversity of strengths and challenges that students may face in an inclusive environment. Interventions designed to teach prosocial behaviors can permanently alter the developmental trajectories of children who would otherwise develop serious emotional and behavioral difficulties (Katz, 1997).

Kindness Programs

Prosocial behaviors can be taught, learned, and can change over time. Multiple school-based kindness curricula have been designed to increase prosocial behavior. Kindness programs are a nascent field, with the first of these programs developed only 5 years ago. These programs therefore lack a cogent definition in the literature, but have overlapping core components, including an emphasis on didactics and exercises that emphasize kindness, mindfulness, and gratitude (Kaplan et al., 2016). They also have a clear method for acknowledging and emphasizing acts of kindness that occur in the classroom. Most programs focus on teaching kindness to students in classes, whereas other curricula additionally focus on the larger school

environment, emphasizing creating a more peaceful, accepting, nonjudgmental, and trusting environment.

There are three kindness curricula that have been used to target prosocial behavior in preschool to 12th grade educational settings. One program is the Kindness in the Classroom Program (The Random Acts of Kindness Foundation, 2015) and was developed for students in grades K through 8 and is an approved socioemotional curriculum. A second program, Think Kindness (Think Kindness, 2015), is for students in grades K through 12, and is designed to be taught to students, teachers, and principals as a system-wide intervention. A third program, Kind Campus Program (Ben's Bells Project, 2015), is a commonly used program in schools, and evidence supports its ability to enhance school culture at a systems level. Specifically, the Kind Campus Program enhances the positivity of school climates (Pettman, 2016), which is then associated with positive mental health outcomes and enhanced self-esteem, as well as reduced violence, aggression, and bullying (Kaplan et al., 2016; Thapa et al., 2013).

School kindness curricula may have different effects at different ages and developmental stages. Compassion programs, which have overlaps in content to kindness curricula, delivered in adolescence have been shown to promote empathy, prosocial behavior, and positive mental health outcomes for adolescents and adults (Roeser & Pinela, 2014), but there is very little research for children, especially in early elementary. Early elementary marks a time when there is an influx of novel peer interactions and thus may be a particularly relevant developmental stage for receiving kindness instruction and practices.

Mindfulness Programs

While Kindness Curricula were designed to specifically enhance prosocial behaviors, mindfulness curricula have also been shown to increase prosocial behavior, including

compassion and generosity (Hafenbrack et al., 2020). As such, there may be benefit to integrating kindness and mindfulness principles to further enhance the impact on prosocial behavior. Mindfulness is commonly defined as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p.145). A meta-analysis investigating the link between mindfulness and prosocial behavior synthesized that in both children and adults there is a strong correlation between mindfulness and prosocial behavior ($d = 0.73$), and a fair impact of mindfulness interventions on resulting prosocial behavior ($d = 0.51$; Donald et al., 2019). Mindfulness practices may increase prosocial behavior by enhancing mechanisms of attention and empathy (Hafenbrack et al., 2020).

A meta-analysis isolated mindfulness interventions delivered specifically to children, reviewing 20 studies that implemented mindfulness interventions for youth under age 18, and yielded an overall small to moderate effect size (0.23, $p < .0001$) compared to active controls (Zoogman et al., 2015). The outcome measure significantly moderated effect sizes, with strongest effects seen for changes in psychological symptoms but small to moderate effects present for attention, self-regulation, and parent- and teacher-reported measures. Given the small sample size, more research is needed to determine more conclusively which outcome measures are most influenced by mindfulness interventions for children.

The Role of Self-regulation in Prosocial Behavior

A common outcome measure used to assess improvements after mindfulness interventions is self-regulation. Self-regulation can be broadly defined as the ability to monitor and manage thoughts, emotions, and behaviors. Mindfulness activities typically enhance metacognitive insight, awareness of internal and external states, and engaging in self-control, all

of which build skills that align well with components of self-regulation (Masicampo & Baumeister, 2007). Increases in self-regulation are frequently observed following mindfulness interventions in early childhood. For example, preschoolers who engaged in a mindfulness-based yoga program had increased self-regulation, as measured by the Head Toes Knees and Shoulders (HTKS) task, focused attention, pencil-tapping, and lack of attentional impulsivity, compared to a control group (Razza et al., 2015). Another team found that 12 sessions of a mindfulness curriculum, Mini-Mind, led to small-to-medium effects in preschoolers' attention, working memory, inhibition, and attention shifting when compared to waitlist control (Wood et al., 2018). Similarly, after 12 sessions of MindUP, preschool and kindergarten students exhibited increased teacher-reported executive functioning skills, measured by the BRIEF, compared to a business as usual control (Thierry et al., 2016). Overall, there is a growing body of literature demonstrating enhanced self-regulation in young children after engaging in mindfulness practices.

Self-regulation and prosocial behavior are highly linked, with prosocial behavior positively correlated with more self-regulation at home and with peers in both adolescence (r = 0.33-0.39, $p < .001$; Carlo et al., 2012) and childhood (Eisenberg et al., 1996). It is theorized that this relation is bidirectional, with prosocial behavior inherently including self-regulation skills (e.g., awareness of situations where someone needs help, evaluating helpfulness of taking action, weighing risks and benefits of helping, choosing how to best be helpful). Therefore, more engagement in prosocial behaviors increases one's practice with these self-regulatory skills, promoting a feedback loop by which prosocial behavior and self-regulation continuously bolster one another. Furthermore, when children are in emotionally charged situations with peers, those with higher self-regulation are more able to cope with their emotions and personal distress, and are consequently able to devote more energy to being sympathetic and helpful to their peers

(Eisenlohr-Moul et al., 2012). In this way, self-regulation is often shown to mediate the relation between how and what children are taught (e.g., parenting style or strategies) and children's resulting prosocial behavior (Scrimgeour et al., 2016; Spinrad & Gal, 2018). Therefore, it would be anticipated that self-regulation may also have a role in influencing prosocial behavior in the context of interventions, and studying the impacts of social and emotional learning (SEL) interventions on both self-regulation and prosocial behavior is warranted.

Several studies have looked at the effects of mindfulness interventions on both prosocial behavior and self-regulation. One study used the Mindful Schools program compared to a waitlist control group. Students in the mindfulness condition were more prosocial post-intervention, measured by the Strengths and Difficulties Questionnaire (Viglas & Perlman, 2018), and had enhanced self-regulation as measured by the HTKS. Another study looked at a novel mindfulness infused SEL course on self-regulation, measured by the child observation of mindfulness measure (C-OMM) self-regulated attention scale, in 3 to 4-year-olds (Lemberger-Truelove et al., 2018). The intervention led to enhanced self-regulated attention, and a greater prevalence of kindness language and behaviors based on qualitative data, on days the intervention occurred. Similarly, preschoolers who received 15 sessions of a novel mindfulness intervention showed significant improvements in prosocial behavior, measured via naturalistic observation, self-regulation – measured by the HTKS – and perspective taking (Berti & Cigala, 2020). These 3 recently published studies provide preliminary support for the ability of mindfulness curricula to enhance both prosocial behavior and self-regulation in young children.

While mindfulness interventions alone may enhance prosocial behavior and self-regulation, the requisite self-regulatory skills involved in prosocial behaviors (Blake et al., 2015) suggest benefits to studying how mindfulness *and* kindness practices work together to enhance

both self-regulation (an outcome of mindfulness practice) and prosocial behavior (an outcome of both mindfulness and kindness practices). It would be anticipated that gains in prosocial behavior would lead to gains in self-regulation and vice versa, with each practice benefiting the other. By studying kindness and mindfulness curricula together, there is the potential for increasing prosocial behavior above and beyond each standalone curricula.

Mindfulness-Based Kindness Curriculum

The benefits of mindfulness and kindness curricula warrant investigation into curricula that combine mindfulness and kindness components and investigate the consequential impacts on prosocial behavior and related self-regulation. The mindfulness-based Kindness Curriculum (Center for Healthy Minds, 2017), hereafter referred to simply as the *Kindness Curriculum*, was created by the Center for Investigating Healthy Minds and is the only curriculum that emphasizes a balanced combination of core features from both mindfulness and kindness curricula. Additionally, of the four aforementioned kindness curricula, it is the only one with two peer-reviewed journal articles published about the benefits of the intervention to student outcomes at the individual level. Of the kindness curricula available in the literature, this curriculum has the strongest evidence base and was specifically designed for young students. Given the benefits of prosocial behavior and its ability to shift developmental trajectories, the earlier kindness can be taught, the more impactful it may be in altering developmental trajectories and outcomes.

Kindness curricula are widely implemented in schools, but very few researchers have studied their effects, and no one has studied the effects on prosocial behavior in inclusive early childhood classrooms including outcomes for students with disabilities. The Kindness Curriculum fills a very important gap. Teachers, parents, and head start program staff have all indicated emotional and behavioral issues among their top needs for training and assistance

(Buscemi et al., 1996). The Kindness Curriculum can be integrated into the school culture and taught directly by teachers. It is typically taught by two mindfulness teachers familiar with the curriculum, and consequently transitions to general education teachers leading the curriculum. It was specifically developed to support the development of knowledge and practice of kindness, emotional awareness, coping, problem solving, gratitude, and caring. It integrates kindness lessons with mindfulness activities, and the backbone of lessons include a core theme of helping others while being mindful of the internal and external experience in the present moment. The mindfulness components of the curriculum are affiliated with improved attention, executive functioning and academic performance (Thierry et al., 2016). There is also preliminary evidence to suggest that the Kindness Curriculum enhances social emotional functioning, including social competence, prosocial behavior, and self-regulation in preschoolers (Flook et al., 2015).

The Kindness Curriculum includes 24 sessions delivered twice weekly over the course of three months. Sessions are designed to be short and engaging, spanning about 25 to 30 minutes to accommodate for preschoolers' attention span. The first theme involves laying the groundwork of mindfulness and kindness. Students are taught what mindfulness is, attending to their breath and body, planting literal flower seeds, and metaphorically planting seeds of kindness by putting a garden poster up in the classroom that they will add sticker seeds to any time they witness kind acts in the classroom.

Themes 2 through 5 cover emotional awareness, regulation, and communication. The second theme covers internal emotional awareness and involves noticing internal emotions and ways of responding to emotions when they arise. The third theme covers external emotional awareness, including awareness of the facial expressions that are linked to emotions, how to communicate with others about emotional content, and being kind to difficult emotions when

they arise. The fourth theme is specific to handling strong, difficult emotions, particularly anger, and how to cope with these emotions. Activities include making mind jars that mimic anger when the glitter jar is shaken, and the calming result of watching the glitter settle, and creating a classroom space for calming down. The fifth theme explores how to calm down and work out problems through mindful movement, self-forgiveness, and forgiveness of others.

Themes 6 through 8 cover gratitude, connection to others, and caring for others. Theme 6 covers gratitude for one's self, things in one's life, and other people. Theme 7 involves looking at a globe and sending peace to others, connecting with classmates using smiles, and caring for animals and insects. Theme 8 wraps up the material with gratitude and caring for the world, reviewing material with an acronym bracelet, and wrapping up by going over favorite activities and making a wreath.

The Kindness Curriculum is already widely implemented in schools; the curriculum is freely available for download on the Center for Healthy Minds website and thousands of teachers have downloaded the curriculum for use in their classrooms (Center for Healthy Minds, 2021). However, few researchers have studied the effects of this curriculum using experimental research designs, and as such this curriculum can only be considered possibly efficacious at this point (Southam-Gerow & Prinstein, 2014). The possibly efficacious distinction is granted from having a randomized control trial incorporating a wait-list condition and indicates that the intervention may be promising, but warrants replication (Chambless & Hollon, 1998). In order for the Kindness Curriculum to be considered a well-established treatment, randomized-control trials (RCTs) must be completed that indicate the intervention is as good as an already well-established treatment or better than another active treatment (Southam-Gerow & Prinstein, 2014). Only two RCTs have been published on the benefits of the Kindness Curriculum (Flook et al., 2015;

Poehlmann-Tynan et al., 2016), and neither study used an active control condition. Therefore, there is a clear need for an RCT comparing the Kindness Curriculum to an already efficacious control treatment.

The first RCT was completed by Flook et al. (2015) who delivered the Kindness Curriculum to 30 preschoolers from 3 different classrooms, compared to 38 preschoolers in 4 classrooms who were in a wait-list control group. Comparisons were made on their performance on prosocial behavior and self-regulation between groups before and after the intervention. Results from RM-ANOVAs indicated that there was a significant group by time interaction for a prosocial sharing task, teacher-rated prosocial behavior, overall social competence, and behavior regulation in favor of the Kindness Curriculum over time. However, there were no significant interactions for tasks measuring behavior regulation (i.e., the flanker, dimensional change card sort task, and delay of gratification).

The second RCT was conducted by Poehlmann-Tynan et al. (2016), who compared the Kindness Curriculum (N = 15 preschoolers from 2 different classrooms) to a Treatment as Usual group (TAU; N = 14 preschoolers from 3 different classrooms) for economically disadvantaged preschoolers. The intervention group received 3 hours of dialogic reading and 1 hour of mindfulness intervention, and the control group received 4 hours of dialogic reading per week. Children in the mindfulness group exhibited gains in attentional focus, measured by the Go/No-Go task, and self-regulation, measured by the HTKS, compared to the TAU group. However, there were no changes in empathy, measured by the Attachment Story Completion Task, or compassion, measured by children's compassionate behaviors during a Distress Task (Poehlmann-Tynan et al., 2016).

Findings are promising in demonstrating that the Kindness Curriculum may enhance

prosocial behavior (Flook et al., 2015) and self-regulation (Poehlmann-Tynan et al., 2016), but given the use of a wait-list control group, replication is warranted with an active control group matched to the Kindness Curriculum in duration. Replication is also warranted because the data from the Flook et al. (2015) study was collected from 7 classrooms, of which 6 were from different elementary schools. Intraclass correlation coefficients indicated that there was a lot of variance in teacher-reported behaviors as a product of the different classrooms, indicating that some variance in outcomes was attributable to classrooms. Additional limitations that warrant extension are that neither study assessed intervention fidelity nor acceptability.

Additionally, Flook et al. (2015) found that the intervention may have been particularly beneficial for students with lower baseline functioning on the measures assessed, which is promising for extending this curriculum to students in inclusive education. No researchers have studied the effects of mindfulness-based kindness curricula on prosocial behavior in inclusive settings to determine the effectiveness of the curricula for students with disabilities. Given that some of these students may have more difficulties with socioemotional components, there is precedence for assessing the benefits of these curricula for different learners. For example, students with intellectual, developmental, and learning disabilities may have difficulties with problem solving (Cote et al., 2010; Gumpel et al., 2000). Additionally, students with autism, conduct disorder, intellectual disability, and learning disabilities may experience more difficulties labeling emotions, orienting to others, interpreting emotional cues in others, and/or expressing a response consistent with societal norms (Fletcher-Watson & Bird, 2020; Holder & Kirkpatrick, 1991; Schwenck et al., 2012). Finally, students with autism and intellectual disability may experience more challenges engaging in social reciprocity (Fulton et al., 2021; Lord et al., 2001).

The difficulties with social competencies and skills present in some children with learning disabilities and developmental differences are associated with increased rates of bullying and exclusion (Fox & Boulton, 2005; Silton, 2020). Core components of the Kindness Curriculum including reading stories, emphasizing peace and kindness, and conflict resolution are strategies that have been previously shown to effectively reduce challenging behavior and increase social competence to promote inclusion and reduce bullying in classrooms (McCarty et al., 2016; Parker et al., 2014). An important first step in applying this curricula for students with a variety of needs in an inclusive environment is to determine what aspects of the curriculum, as designed, is effective in this setting. This will provide the groundwork for future studies that may adapt the curriculum to be more effective for inclusive classrooms.

In addition to extending the curriculum to inclusive early education, an important additional extension of previous studies is assessing the ability of the Kindness Curriculum to be administered virtually, which has never been researched before. Covid-19 impacted the 2019-2020 school year, requiring teachers to mobilize resources to provide students with needed services remotely, including virtual delivery of SEL. Expanding and validating virtual options for SEL, such as the Kindness Curriculum, is a priority given the likelihood of continued disruptions to in-person learning in the future. Preliminary research suggests that SEL curricula can be feasibly implemented via a virtual platform for preschool and elementary school students especially when clinicians are engaging and flexible (Landry et al., 2021; Tan et al., 2021). The Kindness Curriculum may provide an empirically supported way to enhance or maintain prosocial behavior when in-person instruction and interaction is limited.

Measurement of Intervention Outcomes

In order to determine how the Kindness Curriculum impacts prosocial behavior, it is important to define prosocial behavior in a way that can be concretely measured. Prosocial behavior is a voluntary social behavior that is intended to help or benefit other people or society as a whole, such as helping, sharing, comforting, and cooperating with others. These are common behaviors frequently observed in schools. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is a common measure of prosocial behavior, and includes questions about volunteering to help others, helping when someone is hurt, engaging in kindness towards younger children, sharing with other children, and considerations of other people's feelings. Notably this assessment can be used for very young children, is suitable for a wide range of children, and includes questions about sharing. Of the different aspects of early prosocial behavior, sharing behaviors are apparent early in human development, typically arising by age 2 (Brownell et al., 2009), and are therefore appropriate for measuring prosocial behavior in young children.

Prosocial behavior is additionally often a response to negative states, such as needs, desires, or emotional distress. Part of prosocial behavior is having the understanding and empathy to know what someone else needs in the moment. Thus, low levels of prosocial skills can result from a lack of requisite foundational skills (e.g., not understanding other's states of minds or emotions), or a lack of awareness or motivation. As such, measuring self-regulation in addition to prosocial behavior may most effectively measure the multifaceted nature of prosocial behavior, including both the attentional and behavioral components.

Given the variability of behavior across situations, in order to get a reliable indication of prosocial behavior it is important to both observe behavior directly from the child in addition to gathering information from informants who can report on the child's behavior. Therefore, in

addition to measuring prosocial behavior indirectly from teacher-reports, behavior can be measured directly in young children using laboratory tasks. There are very few validated laboratory tasks that measure prosocial behavior in young children. However, given the close relation between prosocial behavior and self-regulation, and the number of validated self-regulation tasks that can be used directly with children, a direct self-regulatory task is a promising supplement to teacher-reported prosocial behavior.

The Current Study

For every dollar invested in high-quality early childhood programs, 9 dollars are returned through improved academic performance and better employment outcomes, and reduced crime, mental illness, and addiction (Perry & Jackson, 2014). The Kindness Curriculum can be seamlessly integrated into early education, with preliminary studies indicating benefits in just a few months, with the potential to create positive prosocial habits in children that may positively alter their development. In particular, it is anticipated that the Kindness Curriculum is a warranted investment in inclusive education, with benefits expected for a wide range of learners.

The aims of the current study are to implement the Kindness Curriculum in a setting that has never before been studied, inclusive early education, and to determine if it can enhance prosocial behavior in this setting, while also assessing the feasibility of virtual delivery, which if effective, can increase access to this intervention. While the Kindness Curriculum was initially developed for preschoolers, it has been successfully implemented for students up to age 7 (Uşakli, 2021). This will be the first study to compare the Kindness Curriculum to an active empirically supported control group, Strong Start, in kindergarten and first grade. A similar intervention to the Kindness Curriculum, Mind Up, which consists of a mix of social and emotional learning, mindfulness, and caring, was shown to be better than a standard social and

emotional curriculum in enhancing empathy, mindfulness, prosocial behavior, cognitive control, and peer acceptance (Schonert-Reichl et al., 2015). Thus, there is precedent for a combined mindfulness and Kindness Curriculum to have more benefit than a standard SEL curriculum in enhancing prosocial behavior.

The specific aims and hypotheses are as follows:

Aim 1: The first aim is to replicate previous research supporting the benefits of the Kindness Curriculum in enhancing prosocial behavior. There are only 2 extant studies published on this curriculum, and as such the current study helps validate the curriculum while extending its use to a more diverse student body. A cluster randomized trial was selected, assigning 1 remote classroom and pod A of 4 hybrid classes (N = 26) to receive the Kindness Curriculum and 1 remote and pod B of 4 hybrid control classrooms (N = 20) to receive a standard SEL curriculum, Merrell's Strong Start (Merrell et al., 2009). Prosocial behavior was measured by the teacher-reported Strengths and Difficulties Questionnaire (Goodman, 1997) and the HTKS pre- and post- intervention. Additionally, fidelity checklists were used to monitor that the Kindness Curriculum was delivered as intended from the manual, which has not been done in prior research.

Hypothesis 1: It is hypothesized that the Kindness Curriculum, when implemented with fidelity, will have a statistically significant effect on prosocial behavior over time compared with the control group.

Aim 2: The second aim is to determine the acceptability of the Kindness Curriculum (a) delivered via a virtual format and (b) for students in an inclusive setting. Student and teacher acceptability data was collected to determine how well the Kindness Curriculum was received by students in inclusive classrooms.

Hypothesis 2: It is hypothesized that teachers and students would find the intervention acceptable based on the mean acceptability scores exceeding predetermined acceptability thresholds.

Aim 3: The third aim is to identify the feasibility, acceptability, and effectiveness of the Kindness Curriculum for students with disabilities, defined as students who have IEPs, in order to determine whether the Kindness Curriculum may be a feasible and effective intervention for students with disabilities.

Hypothesis 3: It is hypothesized that *post-hoc* analyses will indicate that students with disabilities will demonstrate similar gains in response to the intervention to those seen among their peers, and qualitative analyses will help identify components of the Kindness Curriculum that are most and least effective and acceptable for students with disabilities to inform future clinical trials implementing the Kindness Curriculum with students with disabilities.

Method

Participants and Setting

Participants were recruited from an urban elementary school in the northeast. Institutional Review Board approval was granted through Syracuse University (protocol #20-136) and approval was granted by the Research Review Committee within the participating school district's Office of Shared Accountability. Students in this school (N = 388) have diverse demographics, including 44% white, 36% black, 9% multiracial, 8% Hispanic, and 3% Asian, 52% female, 13% students with disabilities, 41% of students eligible for free to reduced-priced lunch, 2% English Language Learners (ELL), and 1% homeless (New York State Education Department, 2020).

Inclusion criteria were that children were enrolled in kindergarten or first grade. All 6 teachers of the 3 kindergarten classes and 3 first grade classes at the selected elementary school consented to be a part of the study. Parental/guardian consent was required for the students to participate in the experimental outcome measures, but not for the students to receive the interventions. The interventions were delivered to all students in kindergarten and first grade given that interventions were integrated into the students' classes as part of the general education curriculum. Consent forms were delivered to all parents/legal guardians of kindergarten and first grade students (N = 141; see Figure 1) via the normal means of communication used by the school during this time, which included the principal posting the consent link to *Talking Points*, a mobile and web application for communication between teachers and parents, and teachers sending consents to the parents of their students via *SchoolTool*, a secure website that allows parents to access information about their child including their schedule, progress reports, etc. Consent was obtained from the legal guardians of 46 students. For direct measures completed with students, students were given a description of the study and asked to provide verbal assent. Of the 46 students in the study, 41 students assented to 1:1 virtual assessments.

Procedures

A cluster randomized control trial design was utilized in order to compare the Kindness Curriculum with the control group over time. Students at the time of the study had the option of enrolling in exclusively remote learning (i.e., attend 5 days of school virtually from home) or hybrid learning (i.e., attend school 2 days a week in-person and 3 days a week remotely). There were 2 hybrid classes and 1 remote class per grade. Each hybrid classroom was randomly divided into 2 pods (Pod A and B) in order to reduce the number of students in school at a given time. Pod A students attended school in-person Mondays and Tuesdays, and Pod B students

attended school in-person Thursdays and Fridays. Students engaged in hybrid learning were randomly assigned by pod (i.e., A or B), and remote learners randomly assigned by class (i.e., kindergarten class or grade 1 class), to either receive the intervention (the Kindness Curriculum) or the control condition (Strong Start). In other words, each of the 2 remote classes were randomly assigned to a different intervention, whereas the 4 hybrid classes were randomly divided in half by the participating school (called pod A and B), and half of each class (e.g., A or B) was randomly assigned to a different intervention (see Figure 2).

The reason for randomization by pod was due to scheduling, as some students in Pod A engaged in meetings with other Pod A students. Additionally, this allowed us to control for teacher, as each teacher had some students in pod A (kindness) and some in pod B (control). Due to scheduling conflicts, the curricula were offered at 2 times in the morning; the Kindness Curriculum was Monday and Thursday (8:30am or 9am), and the Strong Start Curriculum Tuesday and Friday (8:30am or 9am). Remote learners engaged in the virtual curriculum from home 2 days a week, and hybrid learners attended 1 class per week virtually from home and 1 class per week in the school classroom with the intervention delivered virtually on a large screen in the front of the classroom. When attending the intervention while in class, students were able to participate by coming up to the front of the room to the computer and the teacher would unmute the classroom during those times.

Measures of prosocial behavior (i.e., the Strengths and Difficulties Questionnaire) including self-regulation (i.e., the Head-Toes-Knees-Shoulders task) were administered before the start of the Curricula (time 1) and immediately following the completion of the curricula (time 2). There were approximately 10 weeks between pre- and post-assessment measures. At the conclusion of the study, participating teachers and students were asked to rate the

acceptability of the Kindness Curriculum by completing a questionnaire about their thoughts about the intervention and brief acceptability scales. The Intervention Rating Profile-15 was completed by teachers, and an adaptation of the Kids Intervention Profile was completed by students. Details about the measures used in this study and the two Curricula follow.

Measures

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ was emailed to teachers via a secure Qualtrics link, and teachers completed the SDQ for each consented student in their classroom pre- and post-intervention. By using Qualtrics, teachers were able to safely complete the SDQ without any in-person contact with researchers.

The SDQ is a brief measure of prosocial behavior, adjustment, and psychopathology. The SDQ consists of 25 questions that derive 5 subscale scores, including: conduct problems, hyperactivity, emotional symptoms, peer problems, and prosocial behavior. A total difficulties score can be computed from the sum of all subscales except the prosocial behavior scale. Items (e.g., "Helpful if someone is hurt, upset, or feeling ill") are responded to on a 3-point Likert scale, with options of 'Not True', 'Somewhat True', and 'Certainly True'. There are multiple SDQ forms for different ages, and for this study, the 4 to 10-year-old form was used given that participants in the study were 5 to 7 years old. See Appendix A for the full SDQ form.

The SDQ has good inter-rater reliability with correlations of 0.62 between parent and teacher raters (Goodman, 1997). Reliability of the SDQ includes Cronbach's alpha of 0.73 (and 0.84 for teacher-rated prosocial behavior), cross-informant correlations of 0.34, test-retest reliability of 0.62 over 4 to 6 months, and confirmed validity of the five-factor structure (Goodman, 2001). Given the utilization of the norm-referenced data for the SDQ for identifying students with concerning behavior (Goodman, 2001), its use as a highly validated measure of

behavior, and its sensitivity to intervention effects, it is a widely utilized scale in both research and practice (e.g., schools). The prosocial behavior scale specifically correlates with resilience (r = 0.41) as measured by the Child Health and Illness Profile-Child Edition resilience subscale (CHIP-CE; Riley et al., 2004), and the prosocial behavior scale at age 5 predicts emotional symptoms at age 6 including externalizing behavioral problems, demonstrating predictive validity (Perren et al., 2007; Stone et al., 2010). At the initial assessment of our sample, Cronbach's alpha for the prosocial scale of the SDQ was 0.89, indicating excellent internal consistency.

Head Toes Knees Shoulders (HTKS; Cameron Ponitz et al., 2009). Self-regulation is a prosocial skill that is related to and predicts social behavior and is a critical component of social and emotional competence. As such, self-regulation was measured as a subordinate construct of prosocial behavior, measured by the HTKS. The extended three part version of the HTKS is the most updated version of the task and was used in the present study as it has a higher ceiling which makes it more appropriate for students up to age 8 (McClelland et al., 2014). During the HTKS, children are asked to play a game that consists of three parts, all of which involve doing the opposite action of what the experimenter says. During the first part, the evaluator instructs the child to touch a body part (e.g., their head), but instead of following the command, the children are supposed to do the opposite and touch a different body part (e.g., their toes). The HTKS requires inhibitory control, attention, and working memory. Total scores range from 0 to 60, with higher scores indicating better self-regulation.

Research assistants were trained in the HTKS via 1) an HTKS online training from Dr. McClelland with the department of Human Development and Family Sciences at Oregon State University, which included reading protocols, watching administration videos, practicing

scoring, and receiving a passing score on a test to receive a certificate of completion, 2) a zoom training with this author that included practice sessions in pairs, and 3) a 1:1 test-out session to ensure adequate administration over Microsoft Teams – the platform used during the assessments with children – and to ensure scoring was correctly recorded and calculated with at least 80% accuracy. Constructive feedback was provided to research assistants regarding any administration or scoring errors. Research assistants were additionally given a refresher course on the HTKS administration prior to completing post-assessments. Form A of the HTKS was used at time 1, and form B was used at time 2. The use of different forms at each time point was chosen in order to reduce practice effects between the two administrations.

The HTKS protocol used in the present study, with adaptations for delivery within a virtual platform, is included in appendix B. Assessments were scheduled 1:1 with students over Microsoft Teams via links posted by teachers to student's remote schedule during school hours. These sessions were scheduled during school hours on days when students were learning from home. Once students joined the Microsoft Teams session they were allocated to a breakout room to work with a research assistant. If there were technical difficulties using breakout rooms (e.g., breakout rooms are not consistently an option on tablets or smartphones), a unique link was sent out to families to join with a research assistant to bypass the breakout room.

The HTKS has strong inter-rater reliability ($\kappa = 0.90$; Mcclelland et al., 2007) and good scoring consistency, with no significant differences between examiners in overall HTKS scores recorded in the fall and spring (Cameron Ponitz et al., 2009). Construct validity is evidenced by high positive correlations between the HTKS and parent-reported attentional focusing ($r = 0.25$, $p < .01$) and inhibitory control ($r = 0.20$, $p < .01$) on the Child Behavior Questionnaire, as well as teacher-reported behavioral regulation ($r = 0.20$, $p < .01$) on the Child Behavior Rating Scale

(Cameron Ponitz et al., 2009). Predictive validity is demonstrated through the ability of the HTKS to significantly predict growth in all academic outcomes (McClelland et al., 2014). At the initial assessment of our sample, Cronbach's alpha for the HTKS was 0.88, indicating excellent internal consistency.

Demographics and educational records. De-identified demographic and educational records were collected from the school's online data repositories, *School Tool* and *IEP Direct*, including gender, age, IEP, and disability status. A data request was processed with the school district to acquire additional information including race/ethnicity, ESL status, and whether or not the student is economically disadvantaged.

Teacher Acceptability

Teacher acceptability was emailed to teachers via a secure electronic Qualtrics link. The link included the acceptability questionnaire outlined below in addition to 7 open-ended questions developed specifically for use in the current study. The open-ended questions included changes teachers have noticed in their students and the general class environment, components of the Kindness Curriculum that were effective and any that were not, impressions and recommendations about the fit of the curriculum for students with disabilities, and any barriers to future implementation of the curriculum. Appendix C provides a list of the open-ended questions.

The Intervention Rating Profile-15 (IRP-15; Martens et al., 1985). The IRP-15 is an acceptability measure for interventions implemented in schools. An adapted version of the IRP-15 was completed by teachers as a measure of teacher acceptability (see Appendix C). The IRP consists of 15 questions, responded to on a 6-point Likert scale, from 'Strongly Disagree' to 'Strongly Agree'. A sample item is, "I would suggest the use of [the Kindness Curriculum/the

Strong Start Curriculum] to other teachers". A teacher acceptability score was calculated by summing the total score on the IRP-15, which can range from 15 to 90, with higher scores associated with more acceptable interventions. The acceptability threshold was set to 60 (i.e., the lowest possible positive indicator in the Likert options ('slightly agree') multiplied by the total number of items). The IRP-15 has internal consistency reliability scores of 0.88 – 0.96, criterion validity of -0.86 with the Evaluative Scale of the Semantic Differential, and factor analysis discriminates between interventions (Finn & Sladeczek, 2001; Martens et al., 1985; Witt & Elliott, 1985). Cronbach's alpha for the IRP-15 in this sample was 0.94, indicating excellent internal consistency.

Student Acceptability

Students in both the intervention and control conditions met 1:1 with a research assistant over Microsoft Teams right after the post-intervention HTKS to complete acceptability questions. The research assistant read them a script reminding them about the intervention, showed participants a picture of the interventionist, and asked what the participants remembered about the intervention to activate their memory. Then participants were asked three open-ended questions to assess student opinions about the intervention: "what did you like best about the lessons with Ms. Cary?", "what did you like least about the lessons with Ms. Cary?", and "Do you have anything else you want to share about how you felt about the lessons with Ms. Cary?". Research assistants transcribed their answers to the best of their ability, as recording the session was not permitted due to privacy concerns. See Appendix D for the script that was read to students and the accompanying open-ended questions. Students then completed the questionnaire outlined below with assistance provided as needed.

Adapted Kids Intervention Profile questionnaire (KIP; Eckert et al., 2017). An adaptation of the Kids Intervention Profile was completed by students as a measure of intervention acceptability (see Appendix D). The original questionnaire is an 8-item measure that assesses students' perceptions of the acceptability of academic interventions. The language was adapted for the current intervention, keeping the general structure and content of questions (e.g., "were there times when you didn't want to write stories with us?" was changed to, "were there times when you didn't want to do the activities with Ms. Cary?"). Boxes of increasing sizes were used in conjunction with a 5-point Likert-type scale that ranges from 'Not at All' to 'Very, Very Much'. The KIP questions load onto two factors; the sum of the first 6 items measure general student acceptability, and the sum of items 7 and 8 measure skill improvement. Items 3 and 8 are reverse-scored. Scores can range from 8 to 40, with an acceptability threshold of 24 (i.e., the lowest possible positive indicator in the Likert options ('some') multiplied by the total number of items) indicating that a score of 24 or greater represents an acceptable rating (Eckert et al., 2017). The KIP has adequate internal consistency and stability over 3 weeks, and KIP ratings are modestly associated with improvements in intervention outcomes (Eckert et al., 2017). Cronbach's alpha for the KIP in this sample was 0.57.

Interventions

Due to the Covid-19 pandemic and stringent safety guidelines in schools, interventions were not permitted to be completed in-person, and both the Kindness Curriculum and the control group, Strong Start, were required by the SU IRB and the elementary school to be delivered virtually. This provided a unique opportunity to determine the feasibility, usability, and acceptability of these curricula within a virtual platform of delivery. Both interventions were adapted to be delivered fully remotely, and Microsoft Teams was selected as it was the

videoconferencing application that all students were using for virtual learning at the time of the study. Using this application minimized potential burdens for parents, guardians, and teachers who might otherwise need to navigate using additional software. The school district provided computing devices (i.e., tablets, laptops) and wifi hotspots to any students that needed them, free of charge, and thus all students in the study had access to virtual learning.

The initial dissertation proposal indicated that 24, 20-30min sessions would be delivered twice a week for 3 months for a total of 24 sessions. However, in the middle of the study (i.e., after the 11th session) the participating school transitioned from hybrid and remote learning options to exclusively in-person or remote learning due to changes in safety guidelines related to the Covid-19 pandemic. Consequently, many participants had altered schedules that no longer allowed them to attend the same interventions that they had previously been attending. Therefore, only 11 of the proposed 24 sessions of each curriculum were delivered. This change in scheduling was brought to the attention of the interventionist approximately a week in advance, allowing some planning for reorganizing the final session. This change was verified with the proposal committee.

Both curricula were taught by myself, with 2 of the 11 sessions co-led with a graduate student in school psychology. School teachers, and occasionally teaching assistants, were also present during the curricula. Both the Kindness Curriculum and the Strong Start Curriculum incorporated 1 book per session, with some overlapping books. Appendix E has a list of the books included in the interventions, with the overlapping books highlighted.

Kindness Curriculum

The intervention group participated in the Kindness Curriculum (Center for Healthy Minds, 2017; Flook et al., 2015) during their SEL morning meeting block. The curriculum is

aimed at enhancing prosocial skills, attention, emotion-regulation, and kindness via direct instruction, reading children's books, singing, using movement, and incorporating experiential exercises. Appendix F outlines each session theme and the topics covered in each. For a description of the themes and sessions see the *mindfulness-based Kindness Curriculum* section of the introduction. Sessions 1, 3-10, 12, and 16 were delivered to students, with each session spanning 30 minutes. All other sessions (highlighted in Appendix F in grey) were not included. Sessions 2 and 11 were skipped as they did not translate well to a virtual platform (e.g., planting flowers in pots in the classroom), but their core messages were embedded in adjacent sessions. The final session was composed of session 16 material along with a review of previous sessions to wrap up the curriculum by emphasizing kindness and gratitude.

Activities in the original curriculum were adapted to a remote format whenever possible to optimize engagement. For example, in the standard curriculum students add seeds of kindness stickers to a poster board in the classroom for kind acts that they do in the classroom. In the virtual curriculum, a PowerPoint slide was created with visual and sound effects that depicted flowers growing in a garden for each kind act that students shared during the session. Virtual modifications to core activities are included in Appendix G with pictures.

Control Condition: Merrell's Strong Start K-2

The control condition engaged in a standard empirically supported SEL curriculum, Merrell's Strong Start K-2 curriculum, 2nd edition (Merrell et al., 2009), instead of the Kindness Curriculum. The Strong Start curriculum includes 10 core sessions and 2 booster sessions, for a total of 12 sessions. Each session was split into two for a total of 24 sessions to match the number of sessions, and duration, of the Kindness Curriculum. Segmenting sessions is acceptable per the curriculum manual, which explicitly provides ways to segment lessons into

parts by including multiple optional extension activities and relevant SEL books. A book was selected for each sessions and extension activities were included to allow for an adequate amount of material to fill 24, 30min sessions. Strong Start includes optional focusing activities (e.g., mindful breathing). Since mindfulness was a core part of the Kindness Curriculum that we wanted to test the benefits of, the optional mindfulness activities were not included in the control group in order to have an active comparison without mindfulness.

Strong Start consists mostly of didactics, reading books, discussion, and activities that don't require materials, and thus translates well to virtual learning. No lessons or activities needed to be altered significantly to be completed virtually. The main adaptation was simply conducting activities over Microsoft Teams rather than in person (e.g., reading books over Teams rather than in person; emotion pictures and supplemental visuals presented on PowerPoint). At the 11th session classes reorganized and the intervention was stopped. Consequently, only 11 sessions were completed (lessons 1-5, each delivered over 2 sessions, with the final session a combination of lesson 7 and lesson 10). As outlined in appendix H, lessons highlighted in grey were not delivered.

Treatment Fidelity

One graduate student and a trained research assistant observed each session and monitored the fidelity of intervention delivery to ensure that each intervention was administered as delineated in their respective manuals using the Fidelity of Intervention (FOI) forms. Interrater reliability was calculated between raters to determine the percent agreement, and fidelity was calculated by the number of items completed out of the total items for all sessions.

The Fidelity of Intervention (FOI) form for the Kindness Curriculum is included in appendix I. FOI was measured by 5 items that were responded to on a dichotomous scale with

response options of “yes” and “no”. Items included (1) visuals and materials set up for the session and the schedule is presented with the activities for the lesson, (2) connection activities that promote paying attention and being mindful on the inside and outside such as listening to the bell, (3) teaching a new concept which provides the foundation for the learning of the day, (4) active engagement in an activity, and (5) session ends with a brief closing activity, such as ringing the bell, singing a song, or listening to a story. Research assistants were provided with a copy of the adapted manual to follow along while rating fidelity to ensure that the correct connection, teaching, active engagement, and closing activities were completed. There were 5 bolded sections in the manual for each lesson that aligned with the 5 fidelity items to enhance clarity of ratings.

Fidelity sheets for the Strong Start Curriculum are included in the prescribed manual for this intervention, with a different checklist for each session. Checklists were adapted to account for changes due to splitting each lesson into 2 sessions. An example fidelity form from session 1 is included in appendix J.

Experimental Design

Aim 1 was to replicate the benefits of the Kindness Curriculum on prosocial behavior, including self-regulation. To address this aim, an RCT was used to compare the intervention to the control group in order to observe changes to prosocial behavior. Pre-intervention scores on measures and demographic characteristics were compared across conditions to test for equivalence of participant sub-samples. Then two, 2-way Repeated-Measures ANOVAs were used to evaluate the effects of the Kindness Curriculum. The two factors were time (i.e., Pre, Post) and condition (i.e., Kindness Curriculum, Strong Start). The dependent variables for the models were prosocial behavior, measured by teacher-reported SDQ, and self-regulation,

measured by student performance on the HTKS. The main effect of the intervention was additionally analyzed to determine if either intervention led to changes in prosocial behavior or self-regulation over time. Paired-sample *t*-tests were used to assess changes within conditions across time.

It was hypothesized that there would be a significant interaction between time and condition for both dependent variables, indicating significantly greater improvements in prosocial behavior for the Kindness Curriculum condition than the control condition over time. Given that there were two separate ANOVAs, we adjusted for family-wise error using Bonferroni corrections, such that alpha was set to .025 to adjust for the two analyses (i.e., .05/2 = .025). If the aforementioned interaction term of the ANOVA yielded statistically significant results, *post-hoc* analyses using *t*-tests would be performed to explore the differences between conditions at different timepoints (independent samples *t*-tests).

An Intention-To-Treat (ITT) analysis was used for the RCT (Gupta, 2011), meaning that once a participant was randomized to a group, they were then included in analyses, regardless of attendance or withdrawal. This analysis is recommended by the guidelines put forth by CONSORT (Schulz et al., 2010) on RCTs, as the method reduces biases in ad hoc decisions to remove participants during the data analysis phase and better reflects treatment conditions typically seen outside of research (Gupta, 2011). Three participants were removed from analyses prior to randomization as they were attending school 4 days per week and would have been exposed to 1 day of each intervention.

Aim 2 was to determine the acceptability of the curriculum, as delivered remotely and in the context of an inclusive classroom. For analyzing quantitative acceptability data, acceptability thresholds were determined by multiplying the Likert-scale number associated with the lowest

possible positive indicator by the total number of items (Turco & Elliott, 1986). As such the threshold on the KIP was determined to be 24 (Eckert et al., 2017) and the IRP-15 was calculated to be 60. Thus quantitative acceptability data from students were averaged and if student acceptability was greater than 24 for the KIP, the intervention was qualified as acceptable to students in an inclusive setting. Acceptability data from teachers were averaged, and if the IRP-15 was greater than 60, the intervention was qualified as acceptable to teachers for use in an inclusive classroom. Qualitative acceptability data from students and teachers was organized in a table to better understand strengths and weaknesses of the intervention.

Aim 3 was to determine the feasibility, acceptability, and effectiveness of the curriculum for students with IEPs. Mean child acceptability was calculated for students with disabilities as compared to typically developing peers to determine intervention acceptability, again using the threshold of 24 on the KIP. If the ANOVA interaction from Aim 1 was significant, post hoc analyses would be completed to determine whether students with disabilities demonstrated similar gains in response to the intervention to those seen among their peers.

Results

Participants

As presented in Table 1, of the 46 participants included in the study, 56.5% were female, and participant ages ranged from 5 to 7 (M = 6.29, SD = 0.58). Eighteen students were enrolled in Kindergarten and 28 enrolled in first grade. Students were 45.7% (n = 21) White, 28.3% (n = 13) Black, 13% (n = 6) Multiracial, 6.5% (n = 3) Hispanic, 4.3% (n = 2) Asian, and 2.2% (n = 1) American Indian or Alaska Native. No students were classified as English Language Learners, 45 participants spoke English as their primary language, and 1 student's primary language was Nepali. Twelve students were eligible for free or reduced-price lunch based on low income, 5

students had IEP plans for a speech or language impairment, 1 student had a 504 plan for health reasons, and 3 students received Response to Intervention (RTI) services due to academic concerns in reading (n = 2) or math (n = 1). Nineteen students were engaged in fully remote learning and 27 were engaged in hybrid learning.

Of the 46 students, 26 were in the Kindness Curriculum group and 20 were in Strong Start. Across groups, students attended 4 to 11 sessions (M = 8.76, SD = 2.36). There were no differences between the groups in number of sessions attended (t = -1.37, p = .18), poverty status (t = 0.14, p = .89), nor gender (t = 0.77, p = .45). However, there was a significant difference in age (t = -2.51, p = .02), such that students in the Kindness Curriculum (M = 6.11, SD = 0.59) were younger than students in the Strong Start condition (M = 6.52, SD = 0.50).

Treatment Fidelity

A doctoral student who attended all sessions was the primary fidelity rater, and one undergraduate student attended each session as the secondary rater. Results of the fidelity data indicated that Strong Start sessions were implemented with 100% fidelity, with 98% agreement between raters. Kindness Curriculum sessions were implemented with 99% fidelity, with 99% agreement between raters. When collapsed across interventions, the interventions were implemented with 99.50% fidelity, and overall there was 98.63% agreement between raters. Additionally, fidelity for each individual coding item across all sessions ranged from 91-100% for both interventions.

Data analysis and Participant Flow

Data were coded and analyzed using SPSS version 26. HTKS analyses were first conducted with all complete cases of data (see consort flow diagram in Figure 1; Pre = 34 [Kindness Curriculum = 19, control = 15] and post = 31 [Kindness Curriculum = 16, control =

15]). Subsequent analyses with the HTKS were conducted using the multiple imputation method for resolving missing data. Multiple imputation is a method for resolving missing data by averaging a multitude of plausible values to account for the uncertainty of missing data (Brand, 1999). There were no differences between results with the HTKS when conducted with complete cases as compared to imputation.

For the SDQ teacher-reported measure of prosocial behavior, only one datapoint was missing (pre-treatment for one participant). Consequently, mean replacement was used to address this single missing data point. There were no differences between core analyses (i.e., RM ANOVA with prosocial behavior) when completed with listwise deletion as compared to mean replacement for this one data point. In sum, mean replacement was used to replace missing data for the SDQ, whereas multiple imputation procedures were used for to replace missing data for the HTKS.

Multiple imputation procedure

Percentages of missing data for the HTKS outcome variable at pre-intervention and post-intervention were 26.1% and 32.6%, respectively. When more than 10% of data is missing, statistical analyses may be biased (Bennett, 2001). Multiple imputation procedures can reduce statistical bias in this context and were therefore employed to address the missing HTKS data, while adhering to intention-to-treat principles. An examination of the pattern of missing data using Little's missing completely at random (MCAR) test indicated that the data was missing at random, $\chi 2 = 3.68$, $p = .16$, indicating it was appropriate to continue with multiple imputation procedures.

To determine the number of variables to include in the imputation model, recommendations by Hardt et al. (2012) indicate that the number of variables not exceed one

third of the cases without missing data. Following this recommendation, given that there were 23 cases without missing data across the 2 timepoints for the HTKS, it was determined that a total of 7 variables may be included in the imputation model. The first two variables selected were inherently HTKS at pre-treatment and post-treatment, given that these are the dependent outcome variables of interest. Condition assignment was additionally selected as a variable to include because of the *a priori* hypothesis that curriculum assignment may affect HTKS outcomes. Classroom assignment was also selected in order to account for the non-specific classroom effects that may have affected other outcomes. To determine the 3 additional variables to include in the imputation model, all other possible variables were analyzed for predictive association with the missing data (Madley-Dowd et al., 2019). In each analysis, missing data was treated as a dependent dichotomous outcome. In other words, for each participant, 0 indicated there was missing HTKS data and 1 indicated there was no missing HTKS data across time.

Logistic regression analyses were conducted for all other possible scale variables that could have been included in the imputation model, including age, student attendance at intervention sessions, and student total difficulties score on the SDQ pre-intervention between pre- and post-timepoints to predict missing data status. Of these analyses, 3 variables were predictive of missing data. Student attendance was predictive of missing data; $\chi^2(1) = 17.48$, $p < .001$, and the model explained 42.2% (Nagelkerke R^2) of the variance in missing data classification and correctly classified 78.3% of the students. Total Difficulties on the SDQ was predictive of missing data; $\chi^2(1) = 4.45$, $p = .04$, and the model explained 13% (Nagelkerke R^2) of the variance in missing data classification and correctly classified 57.8% of the students. Age was also predictive of missing data; $\chi^2(1) = 4.17$, $p = .04$, and the model explained 11.6%

(Nagelkerke R^2) of the variance in missing data classification and correctly classified 60.9% of the students.

Separate chi-square analyses were conducted for categorical demographic predictor variables including gender, race, economically disadvantaged status, IEP status, class time of the intervention, which days of the week students attended the intervention, and which grade students were in. Of these analyses, only the class time of the intervention was predictive of missing data; $\chi^2(1) = 5.45$, $p = .02$. However, class time was not included as a variable in the model given that the 3 variables above are more conceptually related to the HTKS and attendance.

Thus, the 7 variables included in the imputation model were HTKS at time 1, HTKS at time 2, condition assignment, classroom assignment, attendance during intervention sessions, total difficulties on the SDQ at pre-treatment, and age. Imputation procedures were conducted under multivariate normal assumptions (Schafer, 1997). Thirty-three imputation models were run given that the largest missing value percentage was 32.6%, following the recommendations for selecting the number of imputation models used to pool data together to replace missing cases (Graham et al., 2007). The pooled mean for each variable was calculated for each missing data point across all 33 models and was inputted for each instance of missing data.

After imputation, 3 computed values fell outside of the range of scores (i.e., from 0 to 60) than can be attained on the HTKS. These scores were changed to the value within the HTKS score range closest to the imputed number. Specifically, two participants had a negative number at pre-treatment, which was manually changed to 0, and one participant had a number above 60 at pre-treatment, which was manually changed to 60.

Distribution of Data

Participant scores on the HTKS and SDQ at pre- and post-intervention were negatively skewed rather than normally distributed; this was the case both for the overall sample and within each condition. The majority of students scored in the upper quartile on the SDQ and HTKS. Next, distributions of the change scores calculated between pre- and post-intervention were visualized. Change scores were all normally distributed, and consequently corrections were not applied. Change scores were inspected for outliers, and three scores were flagged for being 2 standard deviations above the mean. The following analyses were run with and without these cases to assess whether they were influential to the results obtained. There were no resulting significant differences in the core analyses. As such, these cases are presumed to be uninfluential cases in the present analyses and were included in the final analyses.

Identification of covariates

In order to determine whether covariates should be included in the ANOVA model, associations between prosocial behavior and HTKS at baseline were analyzed in relation to demographic variables and other variables that may have influenced baseline scores. Pearson's correlations were run with continuous variables, and Welch's one-way ANOVA for categorical variables. Resulting statistics are reported in Table 2. Based on these results, there was statistical rationale to consider the remote or hybrid method of delivery for the HTKS, and the teacher and age of the student for the SDQ. Additionally, given the a priori expectation that the dosage of the intervention would impact results, there was conceptual reasoning behind including attendance as an additional possible variable.

Next, attendance, teacher, and age were tested as moderators for the changes in the SDQ, and remote or hybrid status was assessed as a moderator for the HTKS. Moderation was explored by determining whether there was an interaction between each of these variables and the group

(kindness or control) for each dependent variable (i.e., the HTKS and SDQ change scores). PROCESS macro version 3.4 (Hayes, 2018) was used to test moderators, and statistical significance was determined at $p < .05$ if the 95% bias-corrected percentile bootstrapped confidence interval of the indirect effect did not contain zero (Baron & Kenny, 1986; Hayes, 2018). All of the *p*-values for interactions were nonsignificant and consequently no variables were included as covariates in the ANOVA models.

Aim 1 Analyses: Efficacy

As delineated in Table 3, Repeated Measures (RM) ANOVAs were conducted to compare the effect of the Kindness Curriculum and control conditions on (1) prosocial behavior and (2) self-regulation, over the two timepoints: pre-treatment and post-treatment. To ensure that the groups did not differ significantly in variables of interest at baseline, independent samples *t*-tests were conducted between groups during pre-treatment. At pre-treatment, the Kindness Curriculum group was not statistically significantly different than the control group on the HTKS ($t(44) = -1.07$, $p = .29$) or prosocial behavior ($t(44) = -1.88$, $p = .07$).

As graphically depicted in Figure 3, there was no statistically significant interaction between prosocial behavior and condition over time, $F(1,44) = 0.05$, $p = .82$, $\eta_p^2 = 0.001$, which is considered a very small effect (Cohen, 1988). As depicted in Figure 4, there was also no statistically significant interaction between HTKS and condition over time, $F(1,44) = 1.86$, $p = .18$, $\eta_p^2 = 0.04$, which is considered a very small effect (Cohen, 1988).

Paired-sample *t*-tests were used to assess changes within conditions across time to determine whether there was a main effect of either intervention in enhancing prosocial behavior or self-regulation. There was not a statistically significant effect of the Kindness Curriculum over time on prosocial behavior, ($t(25) = -0.46$, $p = .65$), nor self-regulation ($t(25) = -0.02$, $p = .98$).

There was also not a statistically significant effect of the Strong Start Curriculum over time on prosocial behavior ($t(19) = -0.56$, $p = .58$) nor self-regulation, ($t(19) = -2.06$, $p = .05$), though approaching significance.

In order to assess for whether the dosage of intervention may have influenced intervention effects, student attendance to intervention sessions was then included as a covariate in the model. Student attendance was negatively skewed in both the overall sample and within each group. Thus the sample was split in half between the upper 50% and lower 50% of attendance, with a 9.5 sessions used to demarcate the 50^{th} percentile cut-off. When this split-half variable was included as a covariate, repeated measures interaction effects were still non-significant, indicating no significant effect of dosage.

Aim 2 Analyses: Acceptability

Teacher Acceptability

The IRP-15 can range from 15 to 90, with higher scores associated with more acceptable interventions. An acceptability threshold of 60 was used to indicate the lowest possible positive indicator in the Likert options (i.e., "slightly agree"). The Strong Start intervention had an average teacher acceptability of 83, and the Kindness Curriculum had an average teacher acceptability of 84. Due to the limited number of teachers, verbatim responses from teachers are included in Table 4, and organized by general content.

Student Acceptability

Overall scores on the KIP can range from 8 to 40, with an acceptability threshold of 24 (i.e., the lowest possible positive indicator in the Likert options (i.e., "some") multiplied by the total number of items). Average overall student acceptability ratings were 31 out of 40 for the Kindness Curriculum, and 31 out of 40 for the Strong Start Curriculum, indicating that both

interventions were acceptable for students. The KIP questions load onto two factors; the sum of the first 6 items measure general student acceptability, and the sum of items 7 and 8 measure skill improvement. The Kindness Curriculum had a general acceptability of 23/30 and skill improvement of 8/10 and Strong Start also had a general acceptability of 23/30 and skill improvement of 8/10. Overall both curriculums were acceptable to students and led to student-perceived increases in SEL skills.

Verbatim verbal responses to student acceptability questions are included in Table 5. These responses were then qualitatively analyzed. The first step in this process was independent parallel coding (Thomas, 2006). In this initial coding phase, a PhD level clinician (Dr. Felver) and I independently created initial codes using brief active gerunds applied to each incident of data. Focused coding was then used to create categories from codes, and this was completed separately for the Kindness Curriculum and Strong Start. We then met to discuss our codes, checked for the clarity of categories, and agreed upon the final categories. All incidents were then coded by both Dr. Felver and myself. Overall interrater reliability was 88% (91.7% for the Kindness Curriculum and 83.9% for Strong Start). The number of students and percentage of students that endorsed each code is presented in Tables 6 and 7.

As presenting in Table 6, for the Kindness Curriculum, books were most preferred, followed by the bell, kindness garden, feeling happy, mind jar, singing, and learning sign language. The least preferred activities were the bell, disruptive sounds (e.g., student unmuting), books, the mind jar, the kindness garden, and the difficulty of lessons. Nonspecific feedback was most commonly reported for what they least liked (e.g., “nothing”, “I don’t know”).

As presenting in Table 7, for the Strong Start Curriculum, talking about feelings was most preferred, followed by reading books, participating in activities, and seeing peers. The least

preferred activities were also talking about feelings (with some students reporting learning about unpleasant feelings), the length of sessions, technology issues, and books. Similar to feedback from the Kindness Curriculum, nonspecific feedback was most commonly reported for what students least liked (e.g., “nothing”, “I don’t know”).

Aim 3 Analyses: Students with IEPs

The final research goal was to identify the acceptability and effectiveness of the Kindness Curriculum for students with disabilities. Since there were no significant interactions between group and time, post hoc analyses regarding the effectiveness for students with IEPs could not be completed. Instead, the pre-post data for the 5 students with IEPs who participated in the study is presented in Table 8, acceptability data was analyzed for each student with an IEP (Table 9), and acceptability was compared to students without IEPs (Table 10).

Based on the data presented in Table 8, of the 3 students with IEPs in the Kindness Curriculum, prosocial behavior did not change (n = 1), decreased by 1 (n = 1), or increased by 2 (n = 1). Self-regulation did not change (n = 1) or decreased (n = 2). For the 2 students with IEPs in Strong Start, prosocial behavior did not change (n = 2) and self-regulation decreased (n = 2).

As depicted in Table 9, students with IEPs who completed the acceptability measures (n = 3) all met the acceptability threshold of 24, regardless of intervention (i.e., total scores ranged from 30 to 35 for the Kindness Curriculum and 33 for Strong Start), indicating preliminary support that the Kindness Curriculum may be a feasible and acceptable intervention for students with disabilities. Similarly, the skill improvement scores were fairly high (7 out of 10 for kindness and 10 out of 10 for Strong Start).

Table 10 presents the comparisons in acceptability between students with and without IEPs. While there is a very small sample size of students with IEPs, from this data, both curricula

were more acceptable to students with IEPs than those without. When breaking down acceptability into its two subcomponents – student acceptability and skill improvement – the Kindness Curriculum was more acceptable to students with IEPs than those without, whereas the Strong Start curriculum was just as acceptable to students with IEPs than those without. However, Strong Start resulted in more student perceived skill improvement for students with IEPs than those without compared to the Kindness Curriculum.

Discussion

The three core aims of this project were to determine: 1) whether the Kindness Curriculum can enhance prosocial behavior including self-regulation, 2) teacher and student acceptability of a virtual format of this curriculum in an inclusive classroom environment, and 3) the feasibility, acceptability, and effectiveness of the Kindness Curriculum for students with IEPs. Results indicated that the Kindness Curriculum did not significantly change prosocial behavior nor self-regulation when compared to an active control condition. Teacher and student acceptability for the curriculum delivered virtually within an inclusive educational setting was high, indicating teachers and students found the intervention to be acceptable and additionally reported gains in skills. Finally, results of the data from students with IEPs provides preliminary support for extending this curriculum to a variety of learners.

Intervention Effectiveness

There was no main effect or interaction effect between the curriculum delivered and pre- and post-treatment prosocial behavior. In other words, neither intervention significantly increased prosocial behavior, measured by the SDQ, nor the core related component of self-regulation, measured by the HTKS. Additionally, there were no significant differences between the two curricula in changes in prosocial behavior nor self-regulation over time. The findings of

the current study are inconsistent with previous research demonstrating that the Kindness Curriculum enhances prosocial behavior (Flook et al., 2015) and self-regulation (Poehlmann-Tynan et al., 2016).

There may be a few reasons that the quantitative analyses were nonsignificant, despite favorable qualitative feedback. One reason may be due to the dosage. Students only received 11 of the 24 sessions, and it may be that the full 24 sessions are needed to observe statistical changes in prosocial and self-regulatory behaviors. Another reason may be due to situational factors relevant to remote learning; the SDQ measures how much students engage in prosocial acts and thus requires opportunities for teachers to observe students engaging in interactive activities that allow for kind acts (i.e., sharing with a peer, helping someone if they are hurt, kindness to younger children, volunteering to help, being considerate of others' feelings). During hybrid and remote learning models, students attended class a few hours a day on Microsoft Teams with their computer muted the majority of the time, and/or attended class sitting at a standalone desk with three sides of their desk protected with a clear plexiglass divider. These learning settings decrease opportunities to engage in prosocial acts given that students have less opportunities to physically share items and engage with peers, and thus the SDQ may not have been able to capture changes in kindness that may have been present in other contexts (e.g., home) during this time. Assessing parent-reported prosocial behavior would have extended our understanding the prosocial behavior exhibited by participants in additional contexts.

An additional reason that quantitative analyses were nonsignificant may be due to the many different ways one can conceptualize and measure kindness, and some measures may better capture teacher-reported changes in students than others. Unfortunately, there are few validated measures of kindness in young children. In this study, kindness was measured by the

prosocial behavior domain of the SDQ, which taps into kind behaviors observed by teachers. There are also parent forms of the measure that may better tap into prosocial behavior in the home and other contexts. Alternatively, one can assess a student's knowledge and understanding of kindness as a precursor to kind acts. With older students one can assess student perceptions of kindness in the classroom to look at the broader classroom culture of kindness (e.g., School Based Kindness Scale; Binfet et al., 2016). Another option is to focus in on a single subcomponent of kindness, such as sharing. Resource allocation and sharing tasks have been developed and validated that assess a child's willingness to share food (Brownell et al., 2009) or stickers (Chernyak & Kushnir, 2013; Chernyak & Sobel, 2016; Cowell et al., 2015; Flook et al., 2015; Moore, 2009; Paulus, 2016; Paulus et al., 2016) with various target recipients, and allows for a more structured observation of kind acts.

A unique strength of this research design that may also explain the results is the extent to which the intervention and active control groups were matched. Both interventions occurred at the same time in the morning, had the same duration (i.e., 30 minutes), were led by the same interventionist, and used the same PowerPoint templates (e.g., design, font, etc.) over the Microsoft Teams virtual platform. Neither of the previous studies incorporated an active control, with Flook et al. (2015) using a waitlist control and Poehlmann-Tynan et al. (2016) using a Treatment as Usual condition. Since this is the first study to compare the Kindness Curriculum to an active empirically supported control, an interaction may not have been observed because the interventions may be similar in effectiveness. An interaction may have been observed if there had been a third condition that was a waitlist control, and future studies may choose to incorporate a waitlist control in addition to an active control.

Finally, another way to interpret findings are through the stress-buffering hypothesis.

Students during both assessment periods were living in a pandemic. Covid-19, and the regulations surrounding reducing its spread, is a major life stressor associated with increased anxiety, depression, stress, irritability, insomnia, fear, confusion, and anger (Bavel et al., 2020; Brooks et al., 2020; Pfefferbaum & North, 2020). Participants received either an empirically supported intervention, Strong Start, or the Kindness Curriculum intervention, and neither group regressed in skills. It may be that during this very difficult, stressful, time with reduced peer interactions that these interventions buffered stress and maintained student prosocial behavior and self-regulation, which may have otherwise declined during this time. Specifically, Alonso-Martínez et al. (2021) identified that preschoolers during the quarantining period of the pandemic had more difficulties with self-regulation than before quarantining. Furthermore, Vallejo-Slocker et al. (2020) also identified that children had more peer problems, hyperactivity, and emotional problems during the pandemic compared to an earlier reference sample. Including a control group in future studies would help decipher whether these interventions buffer stress compared to students not engaged in any SEL.

Acceptability of Virtual Delivery in Inclusive Classrooms

While quantitative analyses were nonsignificant, acceptability for the Kindness Curriculum via virtual delivery in inclusive classrooms was very high. Students largely reported liking the lessons and activities, and reported increases in skills. Teachers also reported noticing improvements in their students. Based on qualitative report, students in the Kindness Curriculum enjoyed reading books, mindfully listening to the bell, and participating in the kindness garden. Teachers reported that students demonstrated increased empathy, calmness, mindfulness, self-regulation, respect, patience, inclusivity, articulation of feelings, and knowledge and awareness of kindness. Overall, the acceptability data suggests that teachers and students found the

Kindness Curriculum to be a positive experience and data provides support for the curriculum to be implemented in this setting.

No previous study has included qualitative feedback from students and teachers, and this feedback is very valuable in helping to determine which measures may best capture the components that teachers freely reported as the biggest changes in students. In the qualitative feedback, some teachers reported increased kindness and self-regulation among students, the two measures of interest, while additionally reporting increased empathy, calmness, mindfulness, respect, patience, inclusivity, articulation of feelings, and knowledge and awareness of kindness. Other measures that tap into these additional factors may be useful to assess changes after mindfulness-based kindness curricula. For example, the Inclusive Classroom Profile (ICP) – a scale that was developed to assess the quality of inclusive classrooms including interactions between peers, and students' sense of membership (Soukakou, 2012) – could tap into changes in classroom inclusivity as a result of the Kindness Curriculum.

The acceptability data is especially promising given that this study was the first to assess fidelity and acceptability for both the Strong Start and the Kindness Curriculum within the context of virtual delivery. The advent of the internet allows for new avenues of intervention delivery that enable clinicians and teachers to reach hard to access populations and students who are unable to be present in person. Remote delivery allows for this intervention to be provided to students who are temporarily unable to attend school due to hospitalization, natural disasters, pandemics, etc. Remote interventions can extend learning options for remote and rural schools, and since this intervention can be delivered to preschoolers, it could be provided to children prior to enrolling in public school. In fact, virtual interventions for pre-elementary students have been found to have higher attendance than in-person sessions; Baggett et al. (2010) found that a

computer-delivered parent-training intervention for enhancing social-emotional development and early positive behavior in infants had a higher completion rate than home-visiting programs, with parents highly satisfied with the intervention and sense of connection with the remote coach.

Remote interventions are in many ways in their infancy and with enhanced access to technology, it is likely that remote interventions will increase in the coming years. Based on delivering the virtual interventions in this study, there are a couple of considerations and recommendations for remote interventions for children moving forward. One recommendation is to include a blend of synchronous and asynchronous learning options. In this study, the intervention was exclusively delivered synchronously during student morning meeting blocks. At the age of 5 to 7, student attendance is highly dependent on parent involvement and parent schedules including work. As such, student attendance was inconsistent. Future studies may choose to record sessions to provide asynchronous options for students to engage with the material at more convenient times if they were unable to attend the session time.

While there are many advantages to virtual learning, one disadvantage is that it can be difficult to engage young children. Students were more engaged when there were more opportunities to respond (e.g., thumbs up and down in response to questions or activities such as charades) and maximizing these opportunities was important to ensure optimal engagement. The Kindness Curriculum required more adaptations than the Strong Start Curriculum to be completed virtually. The main pillar of the Kindness Curriculum is experiential learning through interactive materials. Without physical materials, sessions needed to be adapted and inherently lost some of the experiential components. Future studies assessing virtual instruction of the Kindness Curriculum may consider mailing materials to students to increase engagement. Strong Start alternatively lent itself very well to remote instruction as there were no materials required

in the curriculum and activities translated easily to remote delivery.

Students with Disabilities

The third aim was to determine the feasibility, effectiveness, and acceptability of extending this curriculum to student with disabilities. To my knowledge, kindness curricula have never been assessed for youth with disabilities, and very few mindfulness curricula have been assessed for young children with disabilities. The majority of studies focus on mindfulness interventions for parents of children with disabilities (Bazzano et al., 2015; Chapman et al., 2013; Rayan & Ahmad, 2018). Studies that have implemented mindfulness interventions with children with disabilities have recruited samples comprised of older children and adolescents. The extant literature is promising, with improvements in task avoidance in students with intellectual disability (Kim & Kwon, 2018), increased helpfulness, social skills, mental health, inattention, and academic skills in students with Learning Disabilities (Beauchemin et al., 2008; Malboeuf-Hurtubise et al., 2017, 2019; Thornton et al., 2017), reduced noncompliance in ADHD (Singh et al., 2010), and increased mood, inhibition, and attention, and reduced anxiety and aggression in autism (Heifetz & Dyson, 2017; Hwang et al., 2015; Juliano et al., 2020). The age range of these studies was ages 8 to 18, with the majority focused on older youth, and currently no study has assessed mindfulness for those with disabilities under age 8.

The current study included children ages 5 to 7 and as such is the first study to assess a mindfulness program for students with disabilities under age 8, and the first study to assess a kindness curricula on students with disabilities at all, regardless of age. All teachers reported that there were no components in the Kindness Curriculum that were not effective for students with disabilities, and one teacher furthermore reported that “it was perfect for all students in our class”. Of the five teachers implementing the curriculum, 4 strongly agreed and 1 agreed with the

statement that “the kindness curriculum is appropriate for a variety of students”. Teachers reported that the most effective components of the curriculum for students with disabilities were the readings and conversations about feelings and working on recognizing and articulating their feelings, the visuals and multiple modes of presentation, and incorporating sign language. This feedback highlights the importance of continuing to incorporate visuals and other forms of presenting information, even when the intervention is in person rather than remote. Overall, this data supports that teachers found the curriculum appropriate and acceptable for students with a range of disabilities.

While teacher acceptability accounts for students with a variety of abilities since teachers responded to questions regarding all students in their class and not just those in the study, student acceptability was limited to students with IEPs enrolled in the study. The students in the study who qualified for IEPs due to a qualifying disability were all classified as having a Specific Language Impairment (SLI). While this narrows the ability to generalize how the curriculum would be received by other learners, this is the first study to assess the acceptability of a mindfulness and kindness curricula for students with SLIs. Student acceptability indicated that students with SLIs found the Kindness Curriculum to be acceptable, as defined by a total acceptability score above 24, and similar in acceptability to the student with an SLI in the Strong Start condition. Additionally, the students with SLIs rated the Kindness Curriculum as slightly more acceptable than students without IEPs.

In sum, there were promising results indicating that both the Kindness Curricula and Strong Start were acceptable to students with SLIs and acceptable to teachers in the context of inclusive classrooms with a variety of different learners. A review of school-based mindfulness for children recommends mindfulness activities as a promising avenue in providing the needed

social and emotional supports and recommends extending mindfulness activities to children with disabilities (Fuchs et al., 2017). This study provides qualitative support for this recommendation, and emphasizes the need for more research within this domain.

Limitations and Future Directions

A core limitation of this study is that there were a number of significant adaptations, including 1) adapting the HTKS assessment to a virtual platform, 2) adapting the interventions to remote delivery, and 3) shortening the number of sessions. As such, there is a reduction in the control of the study design and it is difficult to determine how these factors influenced findings. As mentioned prior, due to the remote and hybrid teaching models, opportunities to observe prosocial behaviors between students was limited. Additionally, the HTKS self-regulation assessment was conducted virtually, with students at home in environments that varied in their distractibility, and parents at times attempted to assist their child in the task. Furthermore, the curriculum was shortened so students did not receive all of the content. Some of the missed content may have been critical to leading to the previously observed changes in student behavior (Flook et al., 2015; Poehlmann-Tynan et al., 2016). It also may be that a certain dosage of intervention is warranted to produce changes in behavior. Future research is still warranted to determine whether the full 24 sessions delivered in-person would replicate when compared to an active control.

Participants in our study scored in the upper quartile on both of the measures assessed. For teacher-reported data, some variables that might explain the ceiling effects may include the highly structured learning environment of the school, both in-person and during remote learning, as well as the school having socio-emotional learning as part of students schedules prior to the interventions. Additionally, some teachers had not met students in-person. Replication in other

school environments, especially those with students who have not previously received SEL programming, may yield alternative findings.

Another limitation is that Cronbach's alpha for the KIP fell below the acceptable range (Tavakol & Dennick, 2011), and may be a result of the age range of participants. Young children often have difficulties responding to Likert scales, especially negatively worded items (Mellor & Moore, 2014). While research assistants were trained to answer student questions and prompt students if they appeared unsure about how to answer a question, some students answered the one negatively worded question such that it contradicted previous answers, reflecting some confusion for students. Thus, the child acceptability results should be interpreted with caution.

An additional limitation of this study is that there were high rates of missing data for the HTKS, which were completed over 1:1 sessions in Microsoft Teams. These rates were not unexpected given that the school reported lower attendance for remote learning sessions, and missing a mean of 10% of data is common in longitudinal educational research, with studies reporting up to 67% missing data (Peugh & Enders, 2004). Missing data was replaced using multiple imputation to predict the values of missing data. This method is excellent in estimating missing data, and superior to listwise deletion, mean replacement, and regression imputation (Olinsky et al., 2003). However, multiple imputation is less effective when missing data exceeds 24%, and the HTKS at the 2 timepoints was missing a mean of 29.35% of data. Results should be interpreted with caution given the high amount of missing data and the small sample size. Replication is warranted with a larger sample with more data points.

Given the sample size, we were underpowered for calculating Intraclass Correlation Coefficients (ICCs), as there were a total of 5 clusters (i.e., 1 remote class and 4 hybrid classes) per condition. ICCs would have contributed to our understanding of the amount of variance in

outcomes attributable to each group of students. All hybrid classrooms were split in half, such that the same teacher rated students in both interventions, which controls for teacher, and neither time of class, type of classroom (hybrid/remote), nor teacher were significant covariates in the ANOVA model. However, there may have been other factors related to class that may have influenced the outcomes. Other statistical analyses, including multilevel modeling such as hierarchical linear models are alternative analyses that can be beneficial when there is missing data, covariates, and nested variables.

Another limitation related to the sample size is that covariates were assessed using the imputed data for the self-regulation outcome variable. Even though no covariates were ultimately included in the ANOVA due to non-significance, assessments of covariates was completed on data that was imputed using some of those potential covariates. The use of multiple imputation with covariates is of current interest to biostatisticians due to its complexity and potential risk of model misspecification. Future research involving more complex approaches may address this limitation, including MedImpute which improves on the accuracy of traditional imputation methods (Bertsimas et al., 2021).

Conclusion

The Kindness Curriculum was highly acceptable when delivered in a virtual platform to a variety of students in inclusive classroom settings. Teachers found the curriculum appropriate and acceptable for students with a range of disabilities, and students with SLIs rated the intervention as slightly more acceptable than students without IEPs. While there was no main effect or interaction effect between curricula and prosocial behavior or self-regulation, students reported increases in skills and teachers reported noticing improvements in their students, including empathy, calmness, mindfulness, self-regulation, respect, patience, inclusivity,

articulation of feelings, and kindness. As the first study to assess a kindness curricula for students with disabilities, this study demonstrates that a variety of students can benefit from the curriculum and more research is warranted to assess the curriculum in inclusive classrooms.

Table 1

Student Demographic Characteristics

	Total (N = 46)	Kindness (n = 26)	Control (n = 20)
Gender - female	56.5%	61.5%	50%
Race/Ethnicity			
American Indian/Alaska Native	2.2%	0%	5%
Asian	4.3%	7.7%	0%
Black or African American	28.3%	26.9%	30%
Hispanic or Latino	6.5%	7.7%	5%
White	45.7%	46.2%	45%
Multiracial	13%	11.5%	15%
Educational disability [a]	10.9%	11.5%	10%
Economically disadvantaged [b]	26.1%	26.9%	25%

Note. [a] Indicates that the student qualified for special education and has an Individualized Education Program (IEP), and [b] is defined by household income equal to or less than 185 percent of the poverty guidelines from the US Department of Health and Human Services for the family size.

Table 2

Correlations & Welch One-way ANOVA Pre-intervention

	Overall		Kindness Curriculum		Strong Start	
	SDQ	HTKS	SDQ	HTKS	SDQ	HTKS
Gender	NS	NS	NS	NS	$F = 5.30$*	NS
Poverty	NS	NS	NS	NS	NS	NS
Remote or Hybrid	NS	$F = 4.20$*	$F = 4.20$*	$F = 4.90$*	NS	$F = 4.50$*
Time of class	NS	NS	NS	NS	$F = 4.60$*	NS
Race (W or B)	NS	NS	NS	NS	NS	NS
Teacher	$F = 6.60$**	NS	$F = 8.64$**	NS	$F = 2.65^{\dagger}$	NS
Attendance	NS	NS	NS	NS	NS	NS
Age	$r = 0.62$**	NS	$r = 0.58$**	NS	$r = 0.58$**	NS
SDQ Prosocial Pre	--	NS	--	NS	--	NS
HTKS Pre	NS	--	NS	--	NS	--

Note. NS indicates the analysis was non-significant

** $p < .01$, *$p < .05$, $^{\dagger}p < .1$

Table 3

Means and Standard Deviations of Measures by Time Point and Condition

Measure	Group	Pre-treatment *M (SD)*	Post-treatment *M (SD)*	*F*	η_p^2
SDQ Prosocial Behavior	Kindness Curriculum	7.42 (2.35)	7.54 (2.69)	0.05	0.001
	Control: Strong Start	8.63 (1.87)	8.85 (2.08)		
HTKS Self-Regulation	Kindness Curriculum	41.57 (18.08)	41.64 (13.30)	1.86	0.04
	Control: Strong Start	42.65 (15.81)	48.29 (8.97)		

Note. SDQ = Strengths and Difficulties Questionnaire. HTKS = Head Toes Knees Shoulders.
$^{*}p < .05$, $^{\dagger}p < .1$

Table 4

Teacher Acceptability – Open-ended Acceptability and Feasibility Data

Question	Kindness Curriculum (*N* = 5)	Strong Start Curriculum (*N* = 5)
What changes have you noticed in your students?	**Awareness and knowledge of kindness** "The students were able to recognize kind acts by themselves and others around them." "Students are more aware of actions, and words that are kind and not kind." **Increased empathy, calmness, mindfulness, and inclusivity** "Students seemed more empathetic and calm." "The scholars are more inclusive of each other. They have been mindful of being kind to each other."	**Knowledge, awareness, and coping with feelings** "Students were able to identify feelings and discuss ways to deal with them." "Self-awareness" **Confidence in class** "The scholars are more confident being a part of a classroom community." **Lack of observed changes due to virtual and hybrid school schedules** "It was hard to tell any changes because my students were fully virtual." "I wish that I saw our students 5 days per week to really see changes in our students."
What changes have you noticed in your classroom environment (virtual and/or in person)?	**Increased empathy, respect, and patience toward peers** "The students were a bit more aware of each other and listened more carefully to them." "Students have shown one another more empathy and are able to articulate what it is." "Students are more patient with one another." **Articulation of feelings** "Our students are beginning to talk about their feelings and explain why they are feeling that way." **Mindfulness and self-regulation** "The scholars have been more mindful of inclusiveness within the classroom community; they are really thinking before acting."	**Awareness and articulation of feelings** "Students are more in tune with their own needs and feelings, as well as those of others." "Our students are beginning to share why they are feeling certain ways." **Classroom cohesion** "The scholars are presenting as part of a more cohesive classroom community."
Components most effective for **typically developing students**	**Engagement** "Physical movements, appropriate texts, and providing a chance for students to talk/share" "Read alouds and engagement"	**Engagement** "Age appropriate and engaging text, giving students time to share and make personal connections" **Content**

	Content "Mindfulness activities with the bell and deep breaths." **Structure** "Structure of program and modeling of procedures etc." "All of it!" (*n* = 2)	"Identifying feelings and ways to deal with them." "Making connections with stories to their own feelings." "I think having students learn about various emotions, cause/effect of those feelings was beneficial. It's important for them to know it's ok to have different emotions as long as they learn to manage their reactions." "All"
Components most effective for **students with disabilities**	"The read alouds and conversations around big feelings (i.e., how to recognize & articulate them)." "Visuals, multiple modes of representation." "Loved the sign language, and talking about their feelings."	"Visuals!" "Being able to act out their feelings"
Components NOT effective for TD students	"None"	"None" "I thought all of the components were effective"
Components NOT effective for students with disabilities	"None" "It was perfect for all students in our class"	"None"
Barriers to you implementing the Curriculum in the future	"Time" (*n* = 3) "Scheduling" "District-issued curriculum" "I would LOVE to see it implemented in person. You did an amazing job on Teams!"	"Time" (*n* = 3) "Scheduling" "None"
Other comments/ feedback	"Thank you!" "It was excellent and helpful for students!"	"This was a great curriculum that provided support for a variety of learners." "Ms. Cary did a fantastic job engaging the students. She prepared and did a great job connecting with the students virtually. The children also felt comfortable participating and I think it's because of how inviting and warm Ms. Cary was during her instruction."
	"I can't say enough about both curriculum's!" "I absolutely loved this (both) curriculum! Unfortunately with this year, it's tough because it was on Teams. I think it would be so much more beneficial in person. (You made the curriculum AMAZING on Teams)."	

Table 5

Student Acceptability Responses

Question	Kindness Curriculum (*N* = 16)	Strong Start Curriculum (*N* = 15)
Like Best	"The books" (*n* = 8) "The bell" (*n* = 4) "I like the bell time because we can breathe, and I feel very relax!" (*n* = 1) "The [kindness] garden" (*n* = 2) "Ms. Cary made me happy" (*n* =1) "The mind jar" (*n* =1) "I liked that it was teaching another language to us" (*n* =1) "little duck?" (*n* =1) "Glitter jar" (*n* =1)	"The books" (*n* = 6) "I liked talking about my feelings" (*n* = 5) "Learning about feelings" (*n* = 1) "I liked it because we had to tell her what makes you feel like the picture on the screen" (*n* = 1) "Doing our feelings, talking about our feelings about being happy, sad, angry" (*n* = 1) "Being mad and angry and sad (nodding when asked if that was okay)" (*n* = 1) "The activities" (*n* = 1) "When I first met her" (*n* = 1) "Zoo animals with elephants in it because I love elephants" (*n* = 1)
Like Least	"Bell" (*n* = 4) "Nothing" (*n* = 3) "Books" (*n* = 1) "Like sometimes I just the breathe in and the breathe out and she had the little shapes and I don't wanna see that" (*n* = 1) "Singing and bell because it's loud" (*n* = 1) "People being unmuted" (*n* = 1) "Some lessons were hard - really really hard" (*n* = 1) "I don't like kindness garden, because it has different people talk. If there only one person, I'll like it." (*n* = 1) "The mind jar" (*n* = 1)	"Nothing" (*n* = 4) "I don't know" (*n* = 2) "Sitting there for a long time" (*n* = 1) "How long it takes" (*n* = 1) "Learning about the emotions" (*n* = 1) "Talking about feelings" (*n* = 1) "[talking] about feeling frustrated and scared" (*n* = 1) "I liked everything I did, except when I couldn't see the books" (*n* = 1) "I don't do the full meeting so I really don't know all of it" (*n* = 1) "The Story about Robby" (*n* = 1) "The meetings" (*n* = 1)
Other comments	"Let's see there's a lot. Maybe all of it – good" (*n* = 1) "I felt happy" (*n* = 1) "I like the story. I like the kindness garden." (*n* = 1) "I found it… Some of it was hard and I felt tired" (*n* = 1) "I liked them" (*n* = 1) "I liked the songs" (*n* = 1) "I feel so happy and I like her voice" (*n* = 1)	"I liked seeing her and all of the kids" (*n* = 1) "[I felt] happy, excited, and I don't really know that's the only thing" (*n* = 1) "They were good" (*n* = 1) "Sad because it is the end of the sessions and terrible that it's over" (*n* = 1)

Table 6

Kindness Curriculum Qualitative Coding of Student Responses (N = 16)

Best	*n*	%	Least	*n*	%
Books	9	56.25	Nonspecific	6	37.50
Bell	5	31.25	Bell	4	25
Kindness Garden	3	18.75	Disruptive sounds	2	12.50
Felt happy	2	12.50	Books	1	6.25
Mind Jar	2	12.50	Mind Jar	1	6.25
Singing	1	6.25	Kindness Garden	1	6.25
Sign Language	1	6.25	Difficulty of lessons	1	6.25

Note. Nonspecific includes comments such as “I don’t know” and “nothing”

Table 7

Strong Start Curriculum Qualitative Coding of Student Responses (N = 15)

Best	*n*	%	Least	*n*	%
Talking about feelings	7	46.67	Nonspecific	8	53.33
Books	6	40	Talking about feelings	3	20
Activities	4	26.67	Length of sessions	2	13.33
Liked seeing peers	1	6. 67	Technology issues	1	6.67
			Books	1	6.67

Note. Nonspecific includes comments such as “I don’t know” and “nothing”

Table 8

Demographics and Outcome Data for Students with IEPs

Group	Student number	IEP	Grade	Age	Race	Economically disadvantaged	Sessions attended	Time 1 Prosocial Behavior	Time 2 Prosocial Behavior	Time 1 HTKS	Time 2 HTKS
Kindness Curriculum	1	SLI	K	5.43	Black	No	8	6	5	0†	0
	2	SLI	1	6.40	White	No	11	10	10	54	43
	3	SLI	1	6.30	Multiracial	No	5	8	10	59	44†
Strong Start	4	SLI	K	5.39	White	No	5	8	8	51†	46†
	5	SLI	1	6.94	White	No	10	10	10	51	43

Note. SLI is Specific Language Impairment, and †indicates imputed scores

Table 9

Acceptability for Students with IEPs

Group	Student number	General Acceptability	Skill Improvement	Total	Liked Best	Liked least	Other comments
Kindness Curriculum	1	23	7	30	"talk about the books"	people being unmuted	no
	2	28	7	35	"I like the bell time because we can breathe, and I feel very relax!"	I don't like kindness garden, because it has different people talk. If there only one person, I'll like it.	I feel so happy and I like her voice.
Strong Start	5	23	10	33	"The books"	How long it takes	Not really

Note. General acceptability is out of 30, skill improvement is out of 10, and total is out of 40 with an acceptability threshold of 24.

Table 10

Comparison of Acceptability Between Students With and Without IEPs

Group	IEP Status	Student General Acceptability	Student Skill Improvement	Student Total Acceptability
Kindness Curriculum	No IEP	22.64	8.07	30.71
	IEP	25.50	7.00	32.50
	Overall	23.00	7.94	30.94
Strong Start Curriculum	No IEP	23.14	8.07	31.21
	IEP	23.00	10.00	33.00
	Overall	23.13	8.20	31.14

Figure 1

Consort Flow Diagram

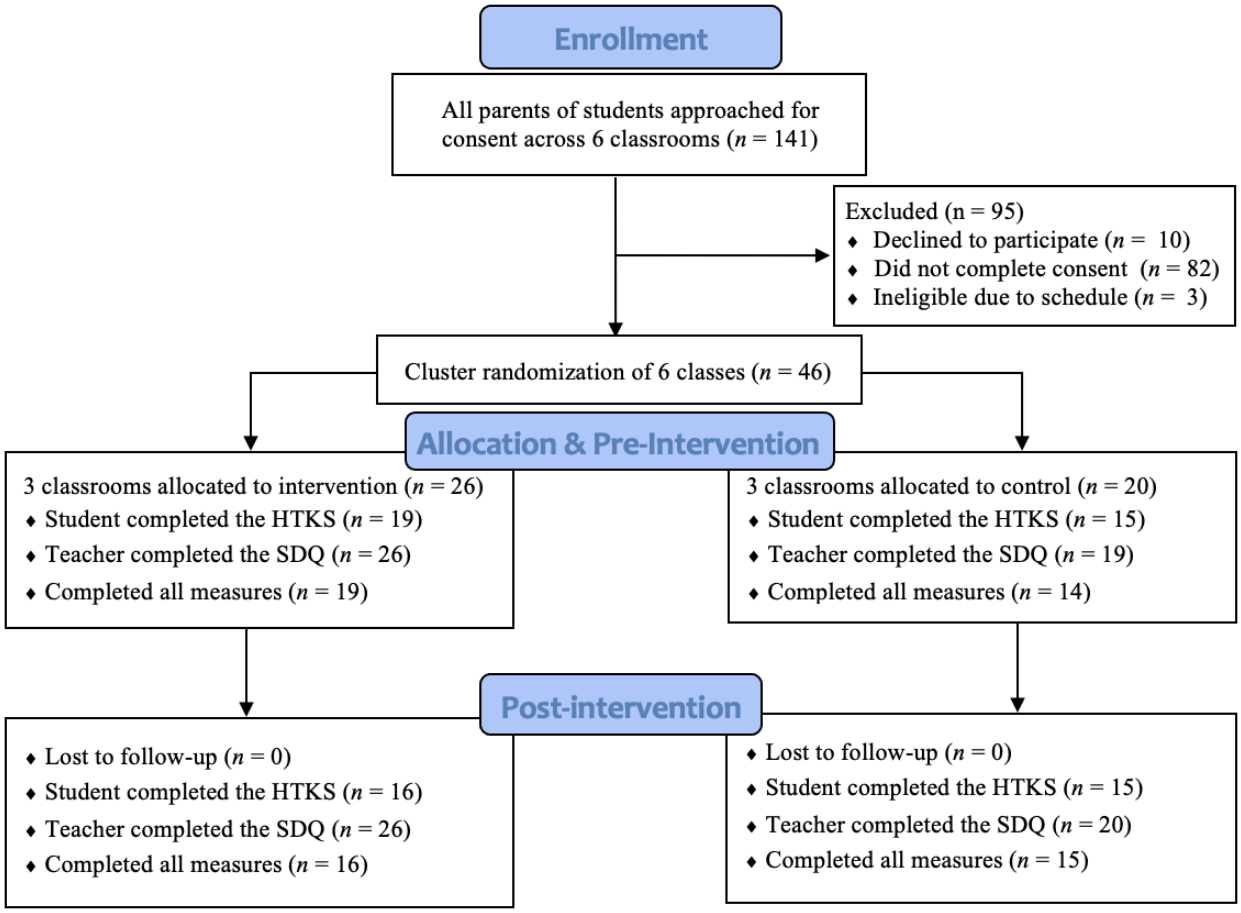
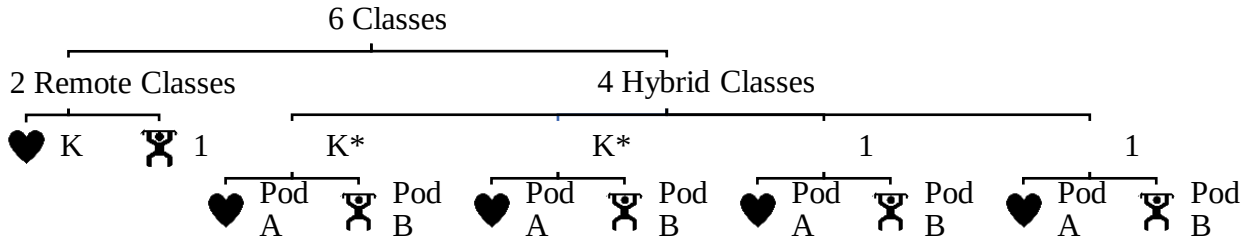


Figure 2

Randomization Diagram of Classes and Pods



Note. ♥ signifies the *Kindness Curriculum*, which is taught on Monday and Thursday, signifies *Strong Start*, which is taught on Tuesday and Friday, and * signifies a 9am class, whereas all other classes are at 8:30am.

Figure 3

RM-ANOVA of the Effect of Group on Prosocial Behavior Over Time

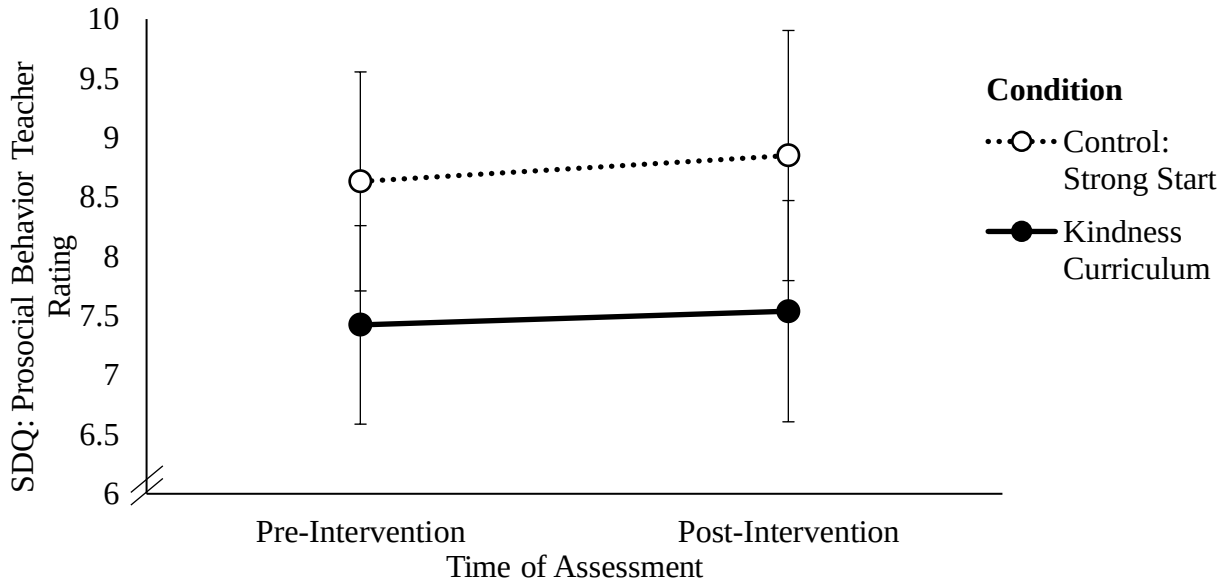
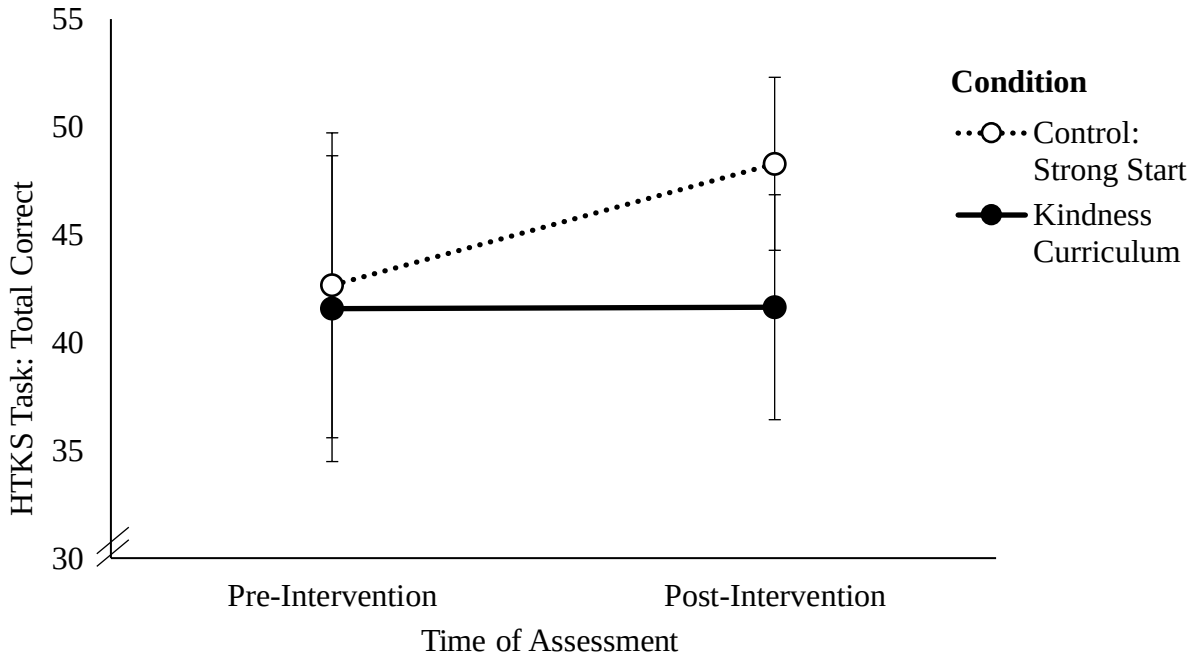


Figure 4

Repeated Measures ANOVA of the Effect of Group on Self-regulation Over Time



Appendix A

Strengths and Difficulties Questionnaire (SDQ)

Strengths and Difficulties Questionnaire

P or T 4-10

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior over the last six months or this school year.

Child's name ..... Male/Female

Date of birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children, for example toys, treats, pencils	☐	☐	☐
Often loses temper	☐	☐	☐
Rather solitary, prefers to play alone	☐	☐	☐
Generally well behaved, usually does what adults request	☐	☐	☐
Many worries or often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, depressed or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often offers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets along better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Good attention span, sees work through to the end	☐	☐	☐

Signature ..... Date .....

Parent / Teacher / Other (Please specify):

Thank you very much for your help

Appendix B

HTKS

Child ID Number: _____

HEAD-TOES-KNEES-SHOULDERS (HTKS)

Parts I, II, and III
FORM A – Extended

Directions:

Say or read the directions in **bold type aloud**. Words in **CAPITAL LETTERS** should be emphasized. **Underlined** words indicate that you should touch the body part that you are saying out loud.

When you administer the task, you should be sitting and the child should be standing.

Administer Part II if the number of points in the testing section totals to 4 or more.
Administer Part III if the number of points in the testing section totals to 4 or more.

The person symbol  indicates that you should perform the motion to demonstrate the correct movement to the child. If the child produces the correct (opposite) response immediately, score the item "2". If they self-correct to the correct response, score the item "1". If they do not touch the correct part of their body at all or touch the named part, score the item "0".

A self-correct occurs if the child makes any discernible motion toward an incorrect response, but then changes his/her mind and makes the correct response. Pausing to think, not moving, and then responding correctly does not count as a self-correction – it would be scored as correct.

For test items, if the child does not respond within 3-5 seconds, say "give it your best guess".

Child ID Number: _____

Date: _____

Time: _____

Context: _____

_____

PART 1: BRIEFLY BUILD RAPPORT

Hi, I'm _____. What's your name?

Use name to locate ID #.

It's nice to meet you!
If you are with an RA, add: **[name of RA] is here with us to write down your responses, and you may hear him/her speak at some point during the session.**

Ask 2 questions to build rapport from the following options:

What's that in your background? What is your favorite color? Do you have any pets? Do you have a favorite animal?

Be engaged and responsive, but if the child goes on a tangent you may interrupt to bring them back to the next step. This should not take more than ~1 minute.

Ensure that you are sitting down so that the child can see your head, but not yet see your toes.

Today we will play some games. It'll be really fun. But first, can you see my head? *Wait for response.* **Can you see my toes?** *Wait for them to say no.* **Oh! My cameras not low enough, so I need to point it down. Now can you see my toes? Great! Now I want to make sure I can see your head and toes.**

Direct the child to stand up and use directive statements to guide them to lower or raise their camera. They may need to move into another room or stand back. It is ok if you cannot see their toes so long as you can see their lower legs if there is not enough room.

PART I: INTRODUCTION

Now we're going to play a game. The game has two parts. First, copy what I do. Touch your head.

Touch your head; wait for the child to touch his/her head.

Good! Now touch your toes.

Touch your toes; wait for the child to touch his/her toes. If the child does not imitate you correctly, repeat the commands with motions again until the child imitates you correctly.

Child ID Number: _____

PART I: PRACTICE

Now we're going to be a little silly and do the OPPOSITE of what I say. When I say touch your HEAD, INSTEAD of touching your head, you touch your TOES. When I say touch your TOES, you touch your HEAD. So you're doing something DIFFERENT from what I say.

*If the child responds incorrectly at any point during the practice portion A1-B4, provide additional explanations up to 3 times before beginning the test portion:

Remember, when I say to touch your [head/toes], you touch your [TOES/HEAD], so you are doing something DIFFERENT from what I say. Let's try another one.

Number of additional explanations given: 0 1 2 3

	Incorrect	*Self-correct*	*Correct*
A1. What do you do if I say "touch your head?"	0 (other than toes)	1	2 (toes)
A2. What do you do if I say "touch your toes?"	0 (other than head)	1	2 (head)

*If the child responds verbally, say **"can you show me?"***

A1 - A2: If the child responds correctly: Say, "**that's exactly right!**"

Ok, let's practice a few more.

	Incorrect	*Self-correct*	*Correct*
B1. Touch your head	0 (other than toes)	1	2 (toes)
B2. Touch your toes	0 (other than head)	1	2 (head)
B3. Touch your head	0 (other than toes)	1	2 (toes)
B4. Touch your toes	0 (other than head)	1	2 (head)

Proceed to Part I test section. Do not explain any parts of the task again. Do not provide feedback during the test portion.

Child ID Number: _____

PART I: TESTING

We will keep playing this game, and you keep doing the OPPOSITE of what I say.

	Incorrect	*Self-correct*	*Correct*
1. Touch your head	0 (other than toes)	1	2 (toes)
2. Touch your toes	0 (other than head)	1	2 (head)
3. Touch your toes	0 (other than head)	1	2 (head)
4. Touch your head	0 (other than toes)	1	2 (toes)
5. Touch your toes	0 (other than head)	1	2 (head)
6. Touch your head	0 (other than toes)	1	2 (toes)
7. Touch your head	0 (other than toes)	1	2 (toes)
8. Touch your toes	0 (other than head)	1	2 (head)
9. Touch your head	0 (other than toes)	1	2 (toes)
10. Touch your toes	0 (other than head)	1	2 (head)

TOTAL POINTS: _____

IF THE CHILD SCORED 4 OR MORE POINTS, CONTINUE TO PART II

IF THE CHILD SCORED LESS THAN 4 POINTS: **Thank you for playing this game with me today!**

Child ID Number: _____

PART II: INTRODUCTION

Ok, now that you've got that part, we're going to add a part. Now, you're going to touch your shoulders and your knees. First, touch your shoulders.

Touch your shoulders; wait for the child to touch his/her shoulders.

Now, touch your knees.

Touch your knees; wait for the child to touch his/her knees.

If the child does not imitate you correctly, repeat the commands with motions again until the child imitates you correctly.

PART II PRACTICE:

Ok, now we're going to be silly again. You keep doing the opposite of what I say like before. But this time, touch your knees and shoulders. When I say to touch your KNEES, you touch your SHOULDERS, and when I say to touch your SHOULDERS, you touch your KNEES.

If the child responds incorrectly at any point during the practice portion C1-D4, provide additional explanations up to 2 times before beginning the test portion:

Remember, when I say to touch your [knees/shoulders], instead of touching your [knees/shoulders] you touch your [SHOULDERS/KNEES], so you are doing something DIFFERENT from what I say. Let's try another one.

Number of additional explanations given: 0 1 2

C1: If the child responds correctly: Say, "**that's exactly right!**"

	Incorrect	*Self-correct*	*Correct*
C1. What do you do if I say "touch your knees?"	0 (other than shoulders)	1	2 (shoulders)

*If the child responds verbally, say **"can you show me?"***

Ok, let's practice a few more.

	Incorrect	*Self-correct*	*Correct*
D1. Touch your knees	0 (other than shoulders)	1	2 (shoulders)
D2. Touch your shoulders	0 (other than knees)	1	2 (knees)
D3. Touch your knees	0 (other than shoulders)	1	2 (shoulders)
D4. Touch your shoulders	0 (other than knees)	1	2 (knees)

Child ID Number: _____

Proceed to Part II test section. Do not explain any parts of the task again. Do not provide feedback during the test portion.

Now that you know all the parts, we're going to put them together. You're going to keep doing the opposite of what I say to do, but you won't know what I'm going to say.

There are four things I could say:
If I say touch your HEAD, you touch your TOES.
If I say touch your TOES, you touch your HEAD.
If I say touch your KNEES, you touch your SHOULDERS.
If I say touch your SHOULDERS, you touch your KNEES.

Are you ready? Let's try it.

PART II: TESTING

	Incorrect	*Self-correct*	*Correct*
11. Touch your head	0 (other than toes)	1	2 (toes)
12. Touch your toes	0 (other than head)	1	2 (head)
13. Touch your knees	0 (other than shoulders)	1	2 (shoulders)
14. Touch your toes	0 (other than head)	1	2 (head)
15. Touch your shoulders	0 (other than knees)	1	2 (knees)
16. Touch your head	0 (other than toes)	1	2 (toes)
17. Touch your knees	0 (other than shoulders)	1	2 (shoulders)
18. Touch your knees	0 (other than shoulders)	1	2 (shoulders)
19. Touch your shoulders	0 (other than knees)	1	2 (knees)
20. Touch your toes	0 (other than head)	1	2 (head)

TOTAL POINTS: _____

IF THE CHILD SCORED 4 OR MORE POINTS, CONTINUE TO PART III

IF THE CHILD SCORED LESS THAN 4 POINTS: **Thank you for playing this game with me.**

Child ID Number: _____

PART III INTRODUCTION

You are doing so well we just have one more part! Now we are going to change the rules of the game.

When I say to touch your HEAD, you touch your KNEES.
When I say touch your KNEES, you touch your HEAD.
When I say touch your SHOULDERS, you touch your TOES.
And when I say touch your TOES, you touch your SHOULDERS.

Ok? Let's practice!

*If the child responds incorrectly at any point during the practice portion E1-F4, provide additional explanations up to 2 times before beginning the test portion:

Remember, we changed the rules. "Touch your head" means touch your KNEES – head goes with knees now. "Touch your shoulders" means touch your TOES – shoulders goes with toes.

Number of additional explanations given: 0 1 2

E1 - E2: If the child responds correctly: Say, "**that's exactly right!**"

PART III PRACTICE:

	Incorrect	*Self-correct*	*Correct*
E1. What do you do if I say "touch your head"?	0 (other than knees)	1	2 (knees)
E2. What do you do if I say "touch your shoulders"?	0 (other than toes)	1	2 (toes)

	Incorrect	*Self-correct*	*Correct*
F1. Touch your head	0 (other than knees)	1	2 (knees)
F2. Touch your shoulders	0 (other than toes)	1	2 (toes)
F3. Touch your toes	0 (other than shoulders)	1	2 (shoulders)
F4. Touch your knees	0 (other than head)	1	2 (head)

You're doing great! Let's do a few more.

Proceed to Part III test section. Do not explain any parts of the task again. Do not provide feedback during the test portion.

Child ID Number: _____

PART III TESTING:

	Incorrect	*Self-correct*	*Correct*
21. Touch your shoulders	0 (other than toes)	1	2 (toes)
22. Touch your head	0 (other than knees)	1	2 (knees)
23. Touch your knees	0 (other than head)	1	2 (head)
24. Touch your toes	0 (other than shoulders)	1	2 (shoulders)
25. Touch your toes	0 (other than shoulders)	1	2 (shoulders)
26. Touch your knees	0 (other than head)	1	2 (head)
27. Touch your shoulders	0 (other than toes)	1	2 (toes)
28. Touch your head	0 (other than knees)	1	2 (knees)
29. Touch your head	0 (other than knees)	1	2 (knees)
30. Touch your shoulders	0 (other than toes)	1	2 (toes)

TOTAL POINTS: _____

Thank you for playing this game with me today!

To calculate Total Score: Sum "TOTAL POINTS" from each testing section. Score is out of 60.

TOTAL SCORE: _____

Child ID Number: _____

Overall, how attentive was the child?

Not attentive or engaged. Had to repeat items and redirect frequently.	Fairly inattentive. Occasionally repeated items or redirected.	Somewhat inattentive. A little distracted, but otherwise attentive.	Fairly attentive. Engaged most of the time.	Very attentive! Did not need to repeat items or work to engage student.
0	1	2	3	4

Was there a specific section that the child had a hard time focusing on (i.e., Part I, Part II, and/or Part III)? _____

Enter notes here (anything of note that occurred during the assessment that may have altered or had an impact on the assessment results):

_____

_____

_____

_____

_____

_____

_____

_____

Appendix C

Teacher acceptability

1. What changes have you noticed in your students?

2. What changes have you noticed in your classroom environment?

3. What components of the Kindness Curriculum have you found to be most effective?

4. What components of the Kindness Curriculum were not effective?

5. What components of the Kindness Curriculum were most effective for students with disabilities?

6. What components of the Kindness Curriculum were not effective for students with disabilities? Do you have any suggestions for how to make these components more effective?

7. What are some of the barriers to implementing the Kindness Curriculum in the future?

Adapted Version of the Intervention Rating Profile-15

Directions: Please complete the items listed below. The items should be completed by placing a check mark in the box to the right of the question that best indicates your agreement with the statement.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. The Kindness Curriculum was acceptable in meeting the students' needs.						
2. Most teachers would find the Kindness Curriculum appropriate for fostering social and emotional growth.						
3. This intervention proved effective in supporting students' needs.						
4. I would suggest the use of the Kindness Curriculum to other teachers.						
5. The students' needs were severe enough to warrant use of the Kindness Curriculum.						

6. Most teachers would find the Kindness Curriculum suitable for the needs of students.						
7. I would be willing to use this intervention in the classroom setting.						
8. This intervention did *not* result in negative side effects for students.						
9. The Kindness Curriculum is appropriate for a variety of students.						
10. The Kindness Curriculum was consistent with other social and emotional curricula I have used in classroom settings.						
11. The Kindness Curriculum was a fair way to handle students' needs.						
12. The Kindness Curriculum was reasonable for the needs of the students.						
13. I liked the procedures used in the Kindness Curriculum.						
14. The Kindness Curriculum was a good way to support student needs.						
15. Overall, the Kindness Curriculum was beneficial for students.						

Appendix D

Student Acceptability using the KIP

Script:

"I'm going to ask you a few questions about the morning group you have been doing with Ms. Cary since February. Here is a picture of Ms. Cary [show the student the printed picture of her]. Do you remember her meetings with your class? [wait for response].

Ms. Cary led activities with you such as reading books, talking about feelings, acting out feelings, and singing songs. Do you remember what else you did with Ms. Cary? [allow for responses to help them remember the group].

I'm going to ask you a few questions about how you felt about the group with Ms. Cary. We just want to know how you liked it and this can help us make it better in the future."

(1) What did you like **best** about the lessons with Ms. Cary?

Transcribe child's answer here:

_____

_____

(2) What did you like **least** about the lessons with Ms. Cary?

Transcribe child's answer here:

_____

_____

(3) Do you have anything else you want to share about how you felt about the lessons with Ms. Cary?

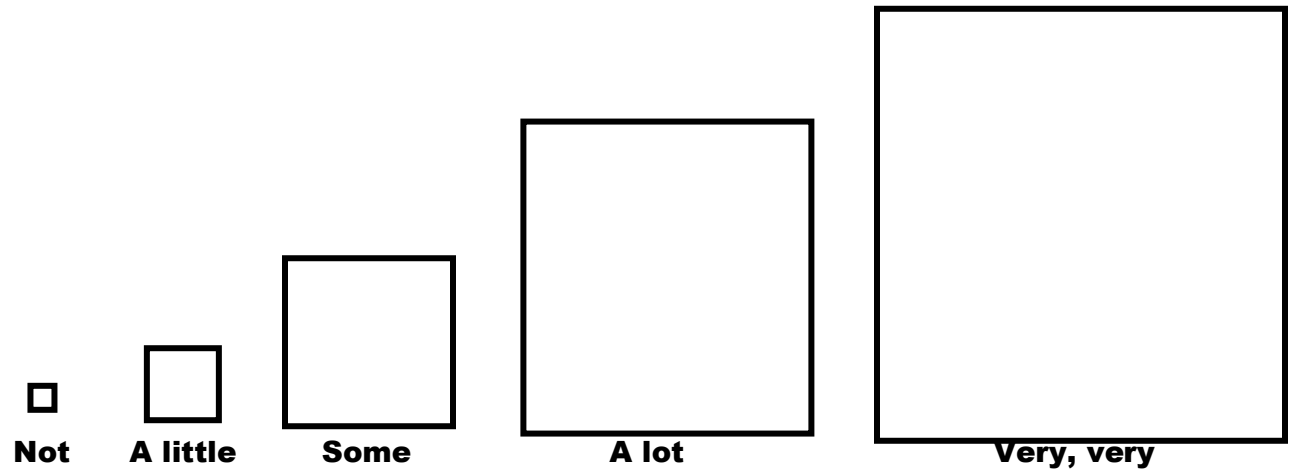
Transcribe child's answer here:

_____

_____

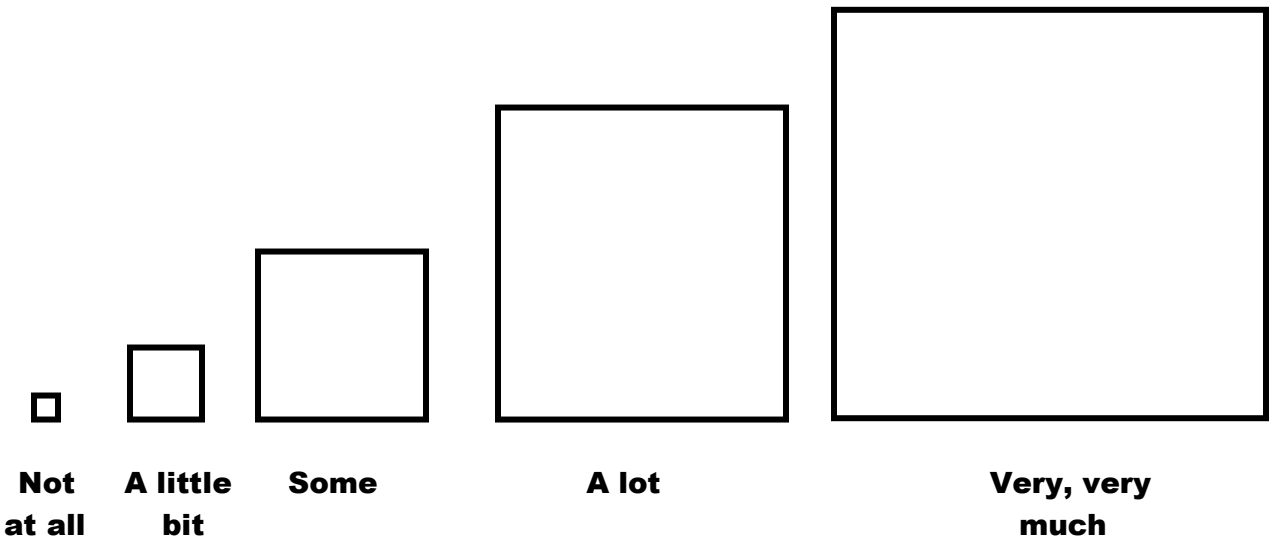
Question #1

How much do you like doing the *lessons with Ms. Cary*?



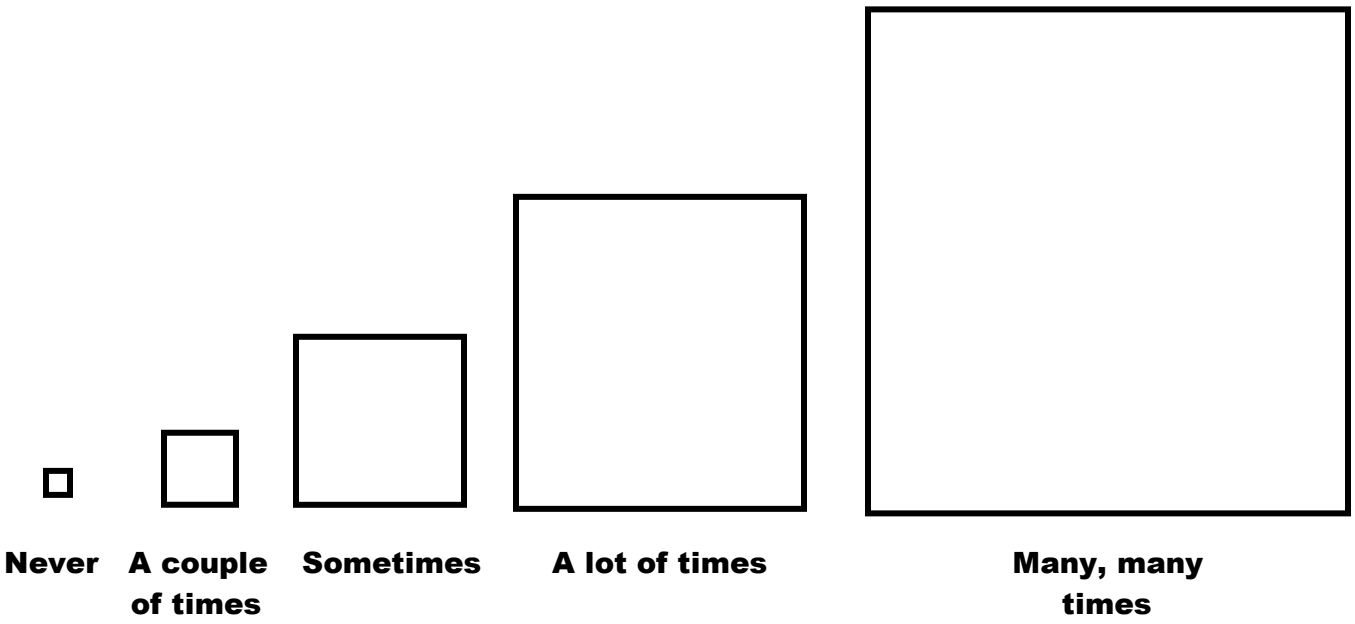
Question #2

How much do you like reading books during the lessons with Ms. Cary?



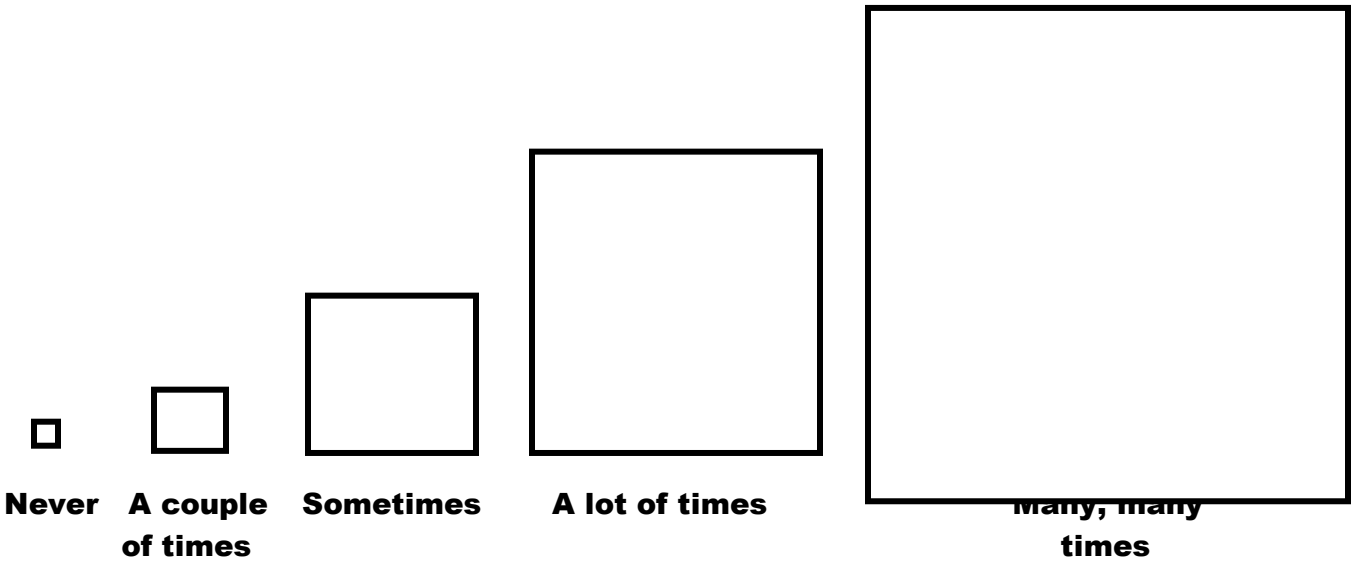
Question #3

Were there times when you didn't want to do the activities with Ms. Cary?



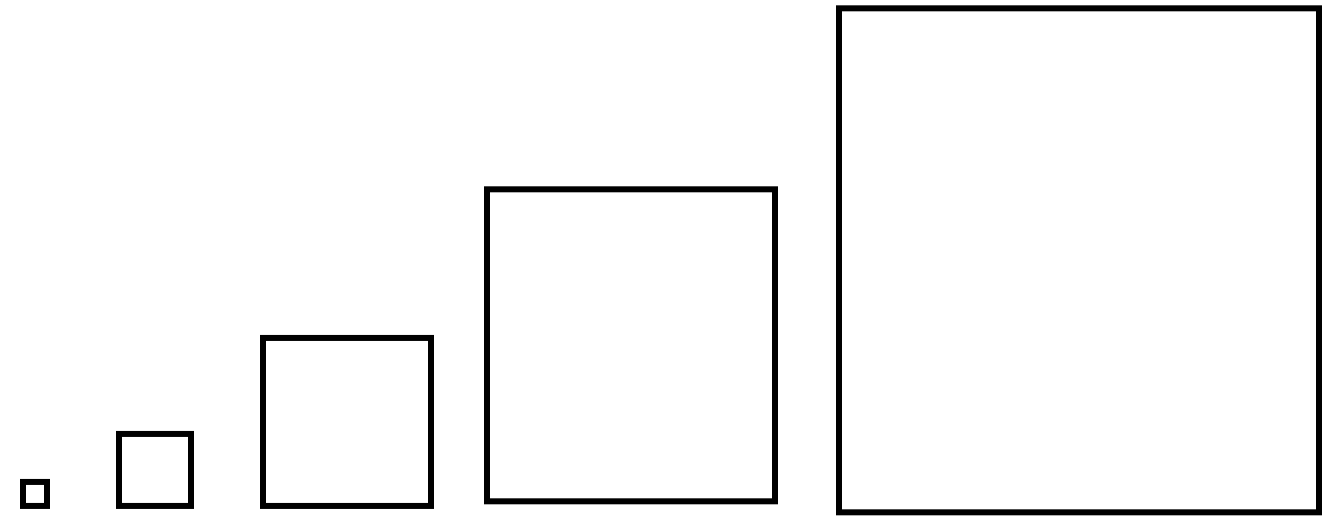
Question #4

Were there any times when you wished you could do more activities with Ms. Cary?



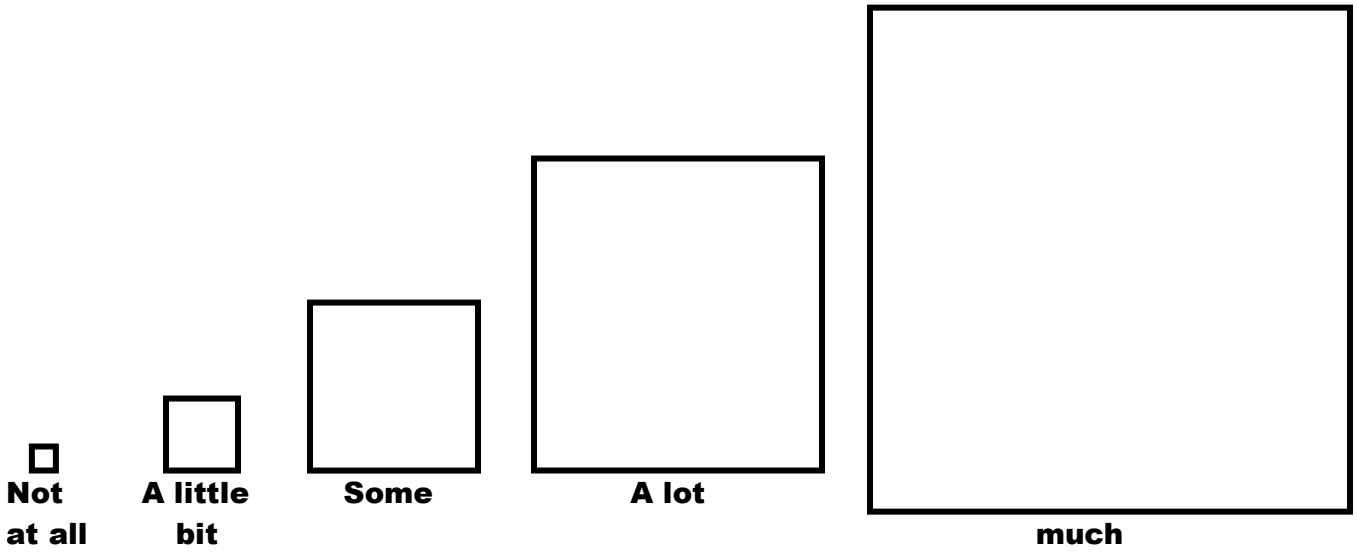
Question #5

How much do you like being told to do the activities with Ms. Cary?



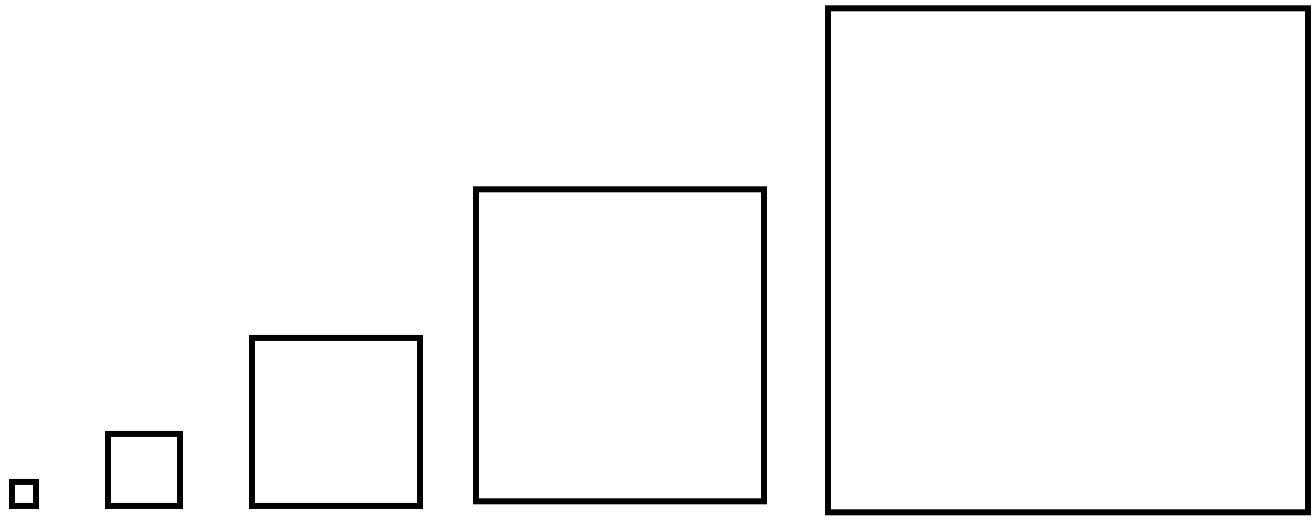
Question #6

How much do you think it helps you when you learned about feelings with Ms. Cary?



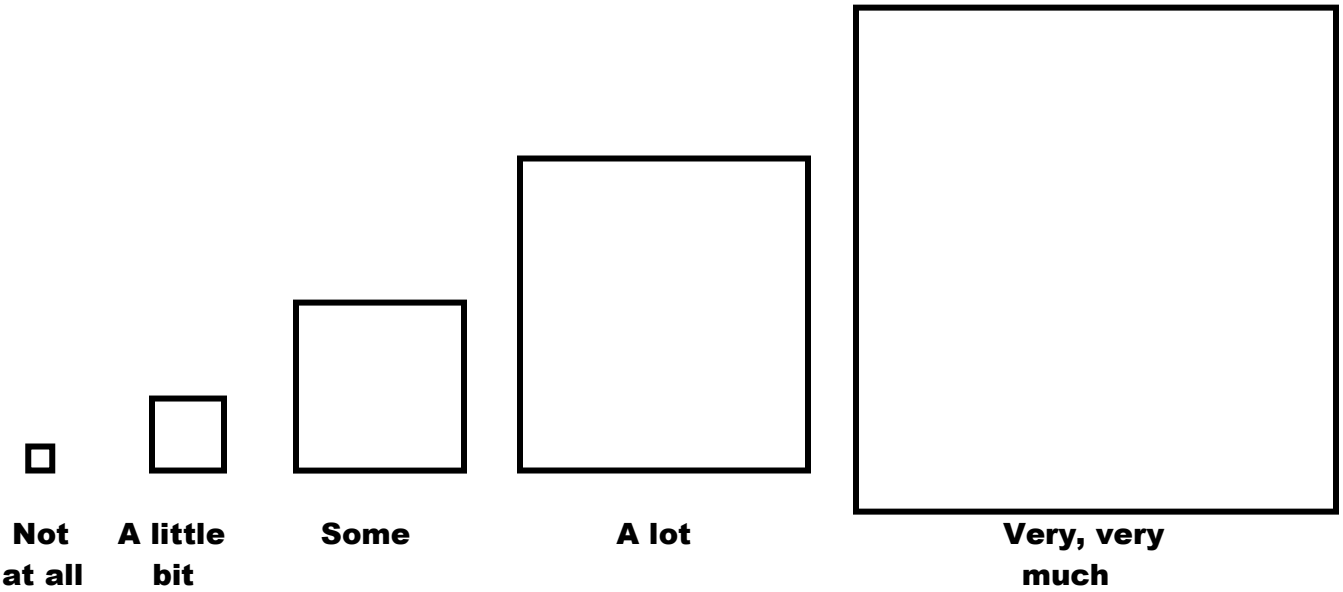
Question #7

Do you think your understanding of feelings, your attention, or your kindness have improved?



Question #8

Do you think your understanding of feelings, your attention, or your kindness have gotten worse?



Appendix E

Books Included in Each Session, by Curriculum

Lesson	Kindness Curriculum		Strong Start	
	Book	*Author*	Book	*Author*
1	What does it mean to be present?	*Rana DiOrio*	The Way I Feel	*Janan Cain*
2	Sumi's First Day of School	*Soyung Pak*	My many colored days	*Dr. Seuss*
3	A Quiet Place	*Douglas Wood*	How are you Peeling? Foods with moods	*Saxton Freymann & Joost Elffers*
4	The Listening Walk	*Paul Showers*	When lion's roar	*Robie Harris*
5	Quick as a Cricket	*Audrey Wood*	Chocolate covered cookie tantrum	*Deborah Blumenthal*
6	The Way I Feel	*Janan Cain*	The most magnificent thing	*Ashley Spires*
7	I'm the Best	*Lucy Cousins*	Chrysanthemum	*Kevin Henkes*
8	Dogger	*Shirley Hughes*	Yoko	*Rosemary Wells*
9	Moody Cow Meditates	*Kerry Lee MacLean*	When Sophie Gets Angry	*Molly Bang*
10	When Sophie Gets Angry	*Molly Bang*	Llama Llama Mad at Mama	*Anna Dewdney*
11	All of Me!	*Molly Bang*	Today I feel silly	*Jamie Lee Curtis*

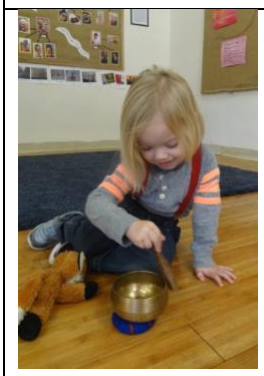
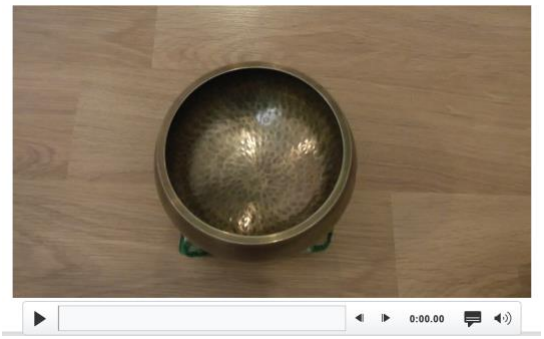
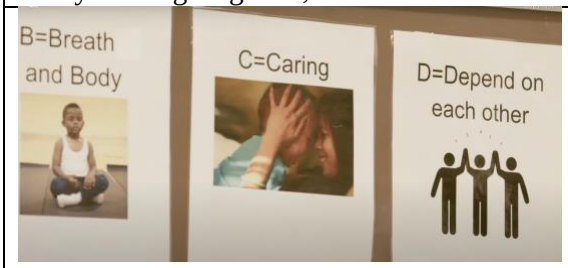
Appendix F

Session Themes and Topics for the Mindfulness-Based Kindness Curriculum

Theme	Session	Session Topic	Activities
1. Mindful bodies and planting seeds of kindness	1	Mindful bodies and awareness of attention and breath	Pinwheel breathing
	2	Growing Seeds	Planting flower seeds in pots
	3	Emotions and caring behaviors	Putting up a kindness poster in the classroom with stickers for every kind act
2. I feel emotions on the inside	4	Restfulness and quiet	Special quiet place with belly buddies
	5	Restful and quiet place	Listening and feeling walk
	6	Feelings in the body	Animal emotions and feeling walk
3. How I feel on the inside shows on the outside	7	Hurting feelings and fixing them	Emotion charades
	8	Hurting feelings and fixing them	Heart & star wands: Communication
	9	Kindness and gratitude	Caring for bean bag animals
4. Taking care of strong emotions on the inside and outside	10	Being with anger	Strong emotions & mind jar
	11	Coping with emotions using mind jars	Make a mind jar to cope with angry emotions
	12	Working with anger and uncomfortable feelings	Create classroom space for calming down
5. Calming and working out problems	13	Mindful movement	Animal yoga
	14	Forgiveness of self	Hugging self with accidents
	15	Forgiveness of others	Forgiveness egg toss
6. Gratitude	16	Gratitude for all that we have	Grateful and repeat
	17	Gratitude	Mindful eating
	18	Adult jobs and services offered	Gratitude for jobs
7. All people depend on each other and on the earth	19	Peace	Peace globe
	20	Depending on, and passing kindness to, each other	Circle – smiling – kindness comes back to you
	21	Kindness, helpfulness, empathy	Jungle adventure and insect book
8. Gratitude and caring for our world and wrap-up	22	Gratitude for the world	Pick up trash
	23	Bringing it all together	Review with bracelet
	24	Wrap-up	Hand & heart wreath and review favorite activities

Appendix G

Kindness Curriculum adaptations for virtual delivery

Original	Adapted
 Flowers are added throughout the school day for kind acts using stickers on a poster on the wall.	 Flowers are added to the virtual garden each session for kind acts. Flowers make a chime sound and float up to represent each kind act.
 A different student rings the singing bowl at each session.	 Singing bowl recording is played.
 Everyone sings together, seated in a circle.	 Students sing on their own (muted) while I sing with subtitles.
 Posters displayed on the wall in the classroom.	 Posters shown over PowerPoint.

Appendix H

Session Themes and Topics for the Strong Start Curriculum

Session	Session Topic	Themes and Activities
1	Introduction to the feelings exercise group	Introduce key concepts and behavioral expectations
2	Understanding your feelings part I	Generate a list of feelings; label as good or not so good
3	Understanding your feelings part II	Identify actions that follow feelings; practice okay and not okay ways of showing feelings
4	Understanding other people's feelings	Learn to be detectives to search for clues about how people are feeling; play emotion charades
5	When you're angry	Show and define anger; identify ways that hurt and ways that help
6	When you're happy	Show and define happiness; ABCs of positive thinking
7	When you're worried	Show and define worry; Letting go of worries through the ABCs of positive thinking & the stop, count in, out strategy
8	Being a good friend	Talking, listening, approaching others, and sharing
9	Solving people problems	Define types of people problems and ways that help
10	Finishing up	Review of topics
11	Booster lesson 1	Review of topics & Feelings Bingo
12	Booster lesson 2	Review of topics

Appendix I

Fidelity of Intervention (FOI) – Kindness Curriculum

Date:

Time:

Introduction and Set-Up	Yes	No
• Present the schedule for today's session • Visuals and materials are set up for the lesson		
Connection	Yes	No
• Prompt paying attention and being mindful on the outside and inside • This may be done by inviting the bell, the Growing Friendship Wish (GFW), adding stickers to the kindness garden, etc.		
Teaching	Yes	No
• A concept or idea is introduced during the lesson providing the foundation for practice that day (e.g., defining mindfulness, paying attention on the outside, introduction to kindness stickers, etc.) • Typically includes reading a book		
Active Engagement	Yes	No
• Children are engaged in an activity to reinforce didactic content for the lesson (e.g., moving like animals, playing emotion charades, brain game, etc.)		
Closing	Yes	No
• The class ends with a brief closing activity (e.g., inviting the bell, singing a song, listening to a song, etc.)		

Session Notes:

Appendix J

Fidelity of Intervention (FOI) – Strong Start

Session 1: The Feelings Exercise Group – Lesson 1 Part 1

RA/graduate student name: _____

Date: _____

Introduction	Yes	No
• Explain to students that a new curriculum will be started. • Give examples of what will be taught and explain the importance of social and emotional health. • Introduce "Henry"		
Define Behavioral Expectations	Yes	No
• List rules for the group and discuss the importance of each expectation.		
Introduction to the Topics Covered	Yes	No
• Use Supplement 1.1 to introduce topics. • Review topics orally.		
Read a Book: The way I feel, Janan Cian	Yes	No
• Help students to identify characters' feelings and behaviors • Use relevant questions to guide the discussion.		
Closing	Yes	No
• Review with students that they will be learning about life skills. Remind students about class rules.		

Session Notes:

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Emily L. Cary

Formerly Emily L. Koelmel

EDUCATION

Predoctoral Internship, UNC Chapel Hill TEACCH Autism Program *2021 – present*
APA Accredited Clinical Internship

Doctoral Candidate, Syracuse University, Syracuse, NY (GPA 3.95) *Anticipated August 2022*
School Psychology Ph.D. Program (APA, CAEP accredited, NASP approved)
Advisor: Joshua Felver, Ph.D., ABPP, Licensed Psychologist

Dissertation: *Implementing the Mindfulness-Based Kindness Curriculum in an Inclusive Setting: Effects on Prosocial Behavior*

M.S. Psychology, Syracuse University, Syracuse, NY (GPA 3.95) *December 2019*

Master's Thesis: *A Neural Correlate of Acceptance? Relating Individual Differences in Dispositional Acceptance to Error Processing*

B.A. Psychology and Studio Art, College of Wooster, Wooster, OH (GPA 3.70) *May 2013*
Deans Award, Cum Laude, Departmental Honors & Honors Undergraduate Theses in Psychology & Art

GRANTS & AWARDS

NY Association of School Psychologists (NYASP) Ted Bernstein Award	*2021*
Syracuse University Research Excellence Doctoral Fellowship ($20,000)	*2020 – 2021*
Syracuse University Psychology Department Travel Award ($500)	*2018 – 2019*
Syracuse University Graduate Student Organization Travel Award ($350)	*2019*
Henry J. Copeland Independent Study Fund Grant Award ($800)	*2013*

PROFESSIONAL EXPERIENCE

Predoctoral Internship, University of North Carolina, Chapel Hill, NC *Fall 2021 – present*

- Primary placement at the UNC TEACCH Autism Program conducting autism evaluations, DBT group therapy for autistic adults, and individual therapy with children and adults with autism
- Rotations include:
  - Evaluations at the CIDD Interdisciplinary hearing and developmental disabilities clinic
  - Parent training and trauma-informed child therapy at the UNC Horizons residential substance use disorder treatment program
  - Multidisciplinary assessment and brief therapy in Psychiatric Emergency Services
  - Neuropsychological evaluations through the department of medicine and rehabilitation
  - Pediatric Consult and Liaison services

School Psychology Practicum, Syracuse Latin School, Syracuse, NY *Fall 2020 – Spring 2020*
Supervisors: Joshua Felver, Ph.D. & Kristina Goodman, M.S., Licensed School Psychologist

- Conduct initial evaluations and re-evaluations for students and present data at IEP meetings
- Assess students via classroom observations, academic probes, achievement, and cognitive testing
- Lead group socioemotional learning interventions

Mental Health Consultant, Montessori School of Syracuse, Syracuse, NY *Fall 2020*

- Independently delivered three 90-minute professional development workshops for teachers about self-care, stress, coping tools, and trauma-informed care during COVID-19

Consultation Practicum, Huntington Pre-K-8 School, Syracuse, NY *Spring 2020*
Supervisors: Bridget Hier, Ph.D. & Brienan Dubiel, Ed.S.

- Consulted with support staff and teachers to identify student academic and behavioral concerns, designed treatment protocols, collaboratively delivered interventions, and monitored progress
- Assisted with school-wide prevention programs and student intervention team meetings

Therapist Intern, Syracuse University Counseling Center, Syracuse, NY *Fall 2019 – Spring 2020*
Supervisor: Heather Cosgrove, Ph.D.

- Completed intake assessments and drop-in appointments for immediate and/or crisis services
- Provided individual therapy for a range of diagnoses (e.g., adjustment disorder, depression, anxiety, eating disorder, substance use, OCD, PTSD, ADHD, developmental disorders)
- Co-created and co-led a weekly expressive arts counseling group

Psychology Assessment Intern, The Arc of Onondaga, Syracuse, NY *Fall 2018 – Summer 2019*
Supervisors: Joseph Himmelsbach, Ph.D. & Christine Sweeney, LMSW

- Assessed individuals ages 3-75 for intellectual and developmental disabilities for state benefit eligibility
- Administered semi-structured interviews, IQ assessments (WPPSI-IV, WISC-V, WAIS-IV, TONI-4) and adaptive interviews (ABAS-3, Vineland-3)
- Completed sexuality assessments using the SSKAAT-R to determine the ability for adults with disabilities to consent, for use within the OPWDD system, and/or for cases of sexual assault
- Provided training for new hires regarding consent and abuse in individuals with IDD

Behavior Therapy Practicum, ARC of Onondaga and Parkside Preschool, Syracuse, NY *Spring 2019*
Supervisor: Brian Martens, Ph.D.

- Completed case conceptualizations and comprehensive reports for children and adults
- Administered interviews, questionnaires, FAs, and FBAs to determine functions of behaviors
- Designed and implemented function-matched treatments for challenging behaviors
- Consulted with caregivers on site to implement treatment protocols

Senior Behavioral Therapist, Center for Autism and Related Disorders, Berkeley, CA *2013 – 2014*
Supervisors: Emily Keough, BCBA & Heather Brown, BCBA

- Actively trained new therapists on-site and conducted performance evaluations of therapists
- Provided ABA therapy in homes, schools, and clinics to children and adolescents ages 3 – 17
- Conducted parent training to enhance and generalize child's skills and shape difficult behaviors

RESEARCH EXPERIENCE

Graduate Researcher, Mind Body Lab, Syracuse University *Fall 2017 – Spring 2021*

- Delivered neuropsychological assessments, cognitive batteries, symptom checklists, and collection of cortisol, to determine the efficacy of largescale mindfulness interventions
- Engaged in evidence-based group interventions (e.g., Learning to Breathe, Soles of the Feet, CBT) for elementary, high school, and college students, and individual mindfulness-based interventions for elementary school students
- Project coordinator for a Mindfulness Based Stress Reduction (MBSR) study with college students, including overseeing data collection and treatment fidelity

Graduate Researcher, Center for Autism Research and Electrophysiology *Fall 2017 – Spring 2021*

- Administered the ADOS-2, cognitive, adaptive, socioemotional, and behavioral measures to children and adolescents for inclusion in studies on sensory and perceptual processing in autism
- Scored measures and wrote comprehensive evaluations for families

- Ran experiments in Matlab, collected behavioral and EEG data, and analyzed data in R/SPSS
- Received funding for two summers to run a study on auditory perception in ASD via an oddball paradigm, schedule child participants, collect and analyze data, and coordinate with audiologists

Health Psychology Research Assistant, University of Washington Medical Center *2015 – 2016*
Supervisors: Kevin Alschuler, Ph.D., Abbey Hughes, Ph.D. & Ivan Molton, Ph.D.

- Conducted neuropsychological assessments with patients with Multiple Sclerosis including the Symbol Digit Modality Test, Paced Auditory Serial Addition Test, and the WASI-II
- Observed and recorded the fidelity of intervention for Mindfulness, Hypnosis, and Psychoeducational group interventions for individuals with chronic pain at the Veterans Affairs
- Assessed intervention-related changes for veterans by conducted EEGs and pain assessments
- Researched a patient-centered collaborative care model integrating medical care with medication management, pain management, and mental health care (e.g., ACT and CBT)
- Recruited patients via chart review, and wrote IRB applications and protocols

Team Leader & Research Associate, Pacific Institute for Research and Evaluation. *2014 – 2015*

- Managed data collection for a randomized control study on smoking and public health policy, which has been published in JAMA internal medicine
- Supervised a team of 5 research assistants, including scheduling shifts and assigning work duties
- Audited research files, conducted participant interviews, and shadowed research assistants
- Created and maintained databases, and wrote agendas for leading team meetings

Social Anxiety, Stress, and Spatial Perception, Honors Senior Thesis *2012 – 2013*

- Designed an independent undergraduate thesis on the interaction between stress, social anxiety, and spatial perception of threatening social stimuli
- Administered the Trier Social Stress Test and the State-Trait Anxiety Inventory and analyzed data
- Completed an oral defense, poster presentation, and received honors status

NYU Social Perception Action and Motivation (SPAM) Lab, Intern *Summer of 2012*

- Selected for a competitive social psychology research position with Dr. Emily Balcetis
- Engaged in seminars and designed, coded, and analyzed data for experiments on the influence of cultural biases on legal verdicts and of internal states (e.g., cognitive styles) on spatial perception

PUBLICATIONS

Published Manuscripts

Helminen, E. C., Zhang, X., Clawson, A. J., Morton, M. L., **Cary, E. L**., Sinegar, S., Janack, P., & Felver J. C. (2021). Stress-buffering effects of mindfulness programming for adolescents in schools during periods of high- and low-stress. *ECNU Review of Education.*

Cary, E. L., Russo, N., Racer, K. H., & Felver, J. C. (2020). A neural correlate of acceptance; Relating individual differences in dispositional acceptance to error processing. *Mindfulness, 11*(6), 1401-1412.

Cary, E. L. & Felver, J. C. (2020). Book Review: Susan M. Pollak: Self-compassion for parents: Nurture your child by caring for yourself. *Mindfulness*, 11, 2241-2242.

Molton, I., **Koelmel [Cary], E.**, Curran, M., Von Geldern, G., Ordway, A., & Alschuler, K. N. (2019). Pilot intervention to promote tolerance for uncertainty in early multiple sclerosis. *Rehabilitation Psychology, 64*(3), 339.

Felver, J. C., Clawson, A. J., Helminen, E. C., **Koelmel [Cary], E. L.**, Morton, M. L., & Sinegar, S. E. (2018). Reconceptualizing the measurement of mindfulness. In D. Grimes, H. Lin, & Q. Wang (Eds.), *Empirical studies of contemplative practices* (pp.19-42). Nova Science Publishers.

Koelmel [Cary], E., Hughes, A., Alschuler, K., & Ehde, D. (2017). Resilience mediates the longitudinal relationships between social support and mental health outcomes in multiple sclerosis. *Archives of Physical Medicine and Rehabilitation, 98*(6), 1139-1148.

Manuscripts in Progress

Cary, E. L., Prieve, B., Pacheco, D., & Russo, N. (submitted for publication). Relating ASD traits and sensory overresponsivity to early electrophysiological indices of auditory processing in children with and without ASD.

Cary, E. L., Sinegar, S., Bergen-Cico, D., Lee, M. K., & Felver, J. C. (submitted for publication). Self-regulation mediates effects of Mindfulness-Based Stress Reduction on anxiety among college students.

Cary, E. L., Rao, A., Matsuba, E., & Russo, N. (manuscript in preparation). Barriers to an autistic identity: How RRBs may contribute to the underdiagnosis of females.

CONFERENCES & POSTERS

*indicates mentorship of undergraduate student(s)

*Rao, A., **Cary, E.**, & Russo, N. (2021). *Past and Present Restricted and Repetitive Behaviors Predict Anxiety in Autistic People*. Oral presentation at the Syracuse University SOURCE Research Symposium, Syracuse, New York.

Cary, E. L., Kaplan-Kahn, E., Masters, E., Matsuba, E, MacKenzie, C., Rodrigues, A., Prieve, B., Pacheco, D., Madrid, A., & Russo, N. (2021). *Relating ASD Traits and Sensory Overresponsivity to Early Electrophysiological Indices of Auditory Processing in Children with and without ASD*. Poster presented at the International Society for Autism Research, Boston, Massachusetts.

Masters, E. C., McKernan, E., Kopec, J., Kaplan-Kahn, E., **Cary, E.**, Matsuba, E., Rodrigues, A., MacKenzie, C., & Russo, N. (2021). *The Impact of ADHD Symptoms and Age on Sensory Features in Autism*. Poster presented at the International Society for Autism Research, Boston, Massachusetts.

Cary, E. L., Kaplan, E. A., Masters, E., Matsuba, E, Prieve, B., Pacheco, D., Rodrigues, A., & Russo, N. (2020). *Early Neural Difference in Auditory Processing of Speech in Children with ASD: Is It Habituation or Discrimination*? Poster accepted for the International Society for Autism Research, Seattle, Washington. (Conference cancelled).

Kaplan, E. A., **Cary, E. L.**, Masters, E., Matsuba, E., & Russo, N. (2020). *Pathways of Perceptual Primacy: ERP Evidence for Relationships between Autism Traits and Enhanced Perceptual Functioning*. Poster accepted for the International Society for Autism Research, Seattle, Washington. (Conference cancelled).

Pacheco, D., Madrid, A., **Cary, E.**, Garber, M., Russo, N., & Prieve, B. (2020). *Subcortical Processing in Children with Autism Spectrum Disorder*. Poster presented at the Annual Meeting of the American Auditory Society, Phoenix, AZ, March 2020.

*Garber, M., **Cary, E.**, & Russo, N. (2019). *Neurological Indicator of Traits Associated with Autism Spectrum Disorder*. Poster presented at the McNair Research Symposium and the Syracuse University College of Engineering and Computer Science Conference, Syracuse, New York.

Kaplan, E. A., Russo, N., McKernan, E. P., Kopec, J., **Koelmel [Cary], E. L.**, & Masters, E. (2019). *This is a Question? Prosody, Social Communication, and the N400 Effect*. Poster presented at the International Society for Autism Research, Montreal, Canada.

Kopec, J., Prawl, A. M., McKernan, E.P., Kaplan, E. A., **Koelmel [Cary], E.L**., & Russo, N. (2018). *Children and Adults with Autism Detect Rapidly Presented Temporal Information More Accurately Than TD Individuals*. Poster presented at the International Society for Autism Research, Rotterdam, Netherlands.

McKernan, E. P., Kopec, J., Kaplan, E. A. **Koelmel [Cary], E. L.**, & Russo, N. (2018). *The Relationship of Sensory Overresponsivity to Amplitude Discrimination*. Poster presented at the International Society for Autism Research, Rotterdam, Netherlands.

Kaplan, E. A., Russo, N., Kopec, J., McKernan, E.P., **Koelmel [Cary], E. L**. & Prawl, A. M. (2018). *EEG Correlates of the Attentional Blink: Relationship to Autism Symptoms*. Poster presented at the International Society for Autism Research, Rotterdam, Netherlands.

*Allawh, C., *Wherry, M., **Koelmel [Cary], E.L.**, & Felver, J., A. (2018). *Evaluating the Effects of a Learning to BREATHE Mindfulness Intervention on Emotion Regulation in At-Risk Adolescents*. Poster presented at the SU Psychology Undergraduate Poster Session, Syracuse, NY.

Clawson, A., **Koelmel [Cary], E.L.,** & Felver, J., A. (2018). *School-based Mindfulness Intervention Supports Adolescent Resiliency*. Oral presentation at the NASP Conference, Chicago, IL.

Koelmel [Cary], E. L. (2013). *The Interaction between the Physical Environment and Metaphysical States: The Role of Social Anxiety and Stress in Informing Spatial Perception*. Poster presented at the College of Wooster Independent Study Symposium, Wooster, OH.

Koelmel [Cary], E. L., & Mian, M. (2012). *The Dieter's Dilemma: A Struggle between Self Control and Temptation*. Oral presentation at the NYU Social Perception Action and Motivation Summer Conference, New York, NY.

TRAININGS, CERTIFICATIONS, & PROFESSIONAL DEVELOPMENT

Diagnosing Autism: Using CARS-2 to Diagnose ASD through Telehealth, UNC TEACCH Autism Program, *September 2021*

Fundamentals of Structured TEACCHing, UNC TEACCH Autism Program, *July 2021*

Future Professionals Program (FPP), Syracuse University Women in Science and Engineering (WiSE), *September 2020 – present*

LGBTQ+ Safe Zone Training, Syracuse University LGBT Resource Center, *April 2021*

Brief Observation of Symptoms of Autism Training, UCLA Center for Autism Research and Treatment, *October 2020*

Managing Bias Training, Syracuse University Office of Equal Opportunity, Inclusion, and Resolution Services (EOIRS), *October 2020*

Telepsychology Best Practices: Clinical Evaluation and Care, Cultural Competencies, Documentation, Technology, Legal, Regulatory, and Ethical Rules, APA, *March 2020*

Advanced Research Training for the ADOS-2 (Achieved Research Reliability on Modules 1 -4), Weill Cornell Medicine Center for Autism & the Developing Brain, *October 2019*

Trauma-Focused CBT, The Medical University of South Carolina, *November 2018*

Introductory Clinical Training for the Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2), Weill Cornell Medicine Center for Autism & the Developing Brain, *October 2018*

Learning to Breathe Mindfulness Clinical Training, Trinity Retreat Center, *August 2018*

TEACHING AND ADVISING EXPERIENCE

CARE Lab Graduate Mentor, Syracuse University *Fall 2017 – Spring 2021*

- Trained students in cleaning EEG data, scoring assessment forms, and analyzing data
- Provided mentorship and oversight for students pursuing undergraduate research projects
- Provided professional development including CV workshops and graduate school advice

Mind Body Lab Graduate Mentor, Syracuse University *Fall 2017 – Spring 2021*

- Laboratory manager for 20 Undergraduate Research Assistants during 2020-2021
- Assisted undergraduates in developing posters

Graduate Teaching Assistant, Syracuse University *Fall 2017 – Spring 2018*

- Taught Foundations of Human Behavior (PSY 205) to 7 sections of approximately 25 students
- Led 80-minute weekly lectures, discussions, and interactive activities
- Held office hours, wrote quizzes, graded assignments, and proctored exams

PROFESSIONAL AFFILIATIONS

International Society for Autism Research (INSAR) Member, *2018 – present*
American Psychological Association (APA) Member, *2020 – present*
New York Association of School Psychology (NYASP) Member, *2021 – present*
National Association of School Psychology (NASP) Member, *2017 – 2019*

SERVICE

Student Affiliate to National Groups, *Fall 2020 – Spring 2021*
Professional Development Committee, *Fall 2019 – Spring 2021*
Graduate Admissions Committee, *Spring 2018 – Spring 2021*
Psychology Action Committee Peer Mentor, *Fall 2019 – Spring 2020*
Thriving as a Graduate Student Panel Member, *Fall 2020*
National Alliance on Mental Illness (NAMI) Volunteer, *Spring 2018*
Diversifying Psychology Weekend Graduate Student Liaison, *Spring 2018*

EDITORIAL EXPERIENCE

Ad hoc reviewer, Journal of Child and Family Studies, *August 2020*
Ad hoc reviewer, Child Development, *March 2020*
Ad hoc reviewer, Mindfulness, *February 2020*
Ad hoc reviewer, Brain and Cognition, *October 2018*
Ad hoc reviewer, Journal of School Psychology, *April 2018*