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Effects of Mindful Awareness Practices on Executive Functions in Elementary School Children

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A school-based program of mindful awareness practices (MAPs) was evaluated in a randomized control study of 64 second- and third-grade children ages 7–9 years. The program was delivered for 30 minutes, twice per week, for 8 weeks. Teachers and parents completed questionnaires assessing children's executive function immediately before and following the 8-week period. Multivariate analysis of covariance on teacher and parent reports of executive function (EF) indicated an interaction effect between

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baseline EF score and group status on posttest EF. That is, children in the MAPs group who were less well regulated showed greater improvement in EF compared with controls. Specifically, those children starting out with poor EF who went through the MAPs training showed gains in behavioral regulation, metacognition, and overall global executive control. These results indicate a stronger effect of MAPs on children with executive function difficulties. The finding that both teachers and parents reported changes suggests that improvements in children's behavioral regulation generalized across settings. Future work is warranted using neurocognitive tasks of executive functions, behavioral observation, and multiple classroom samples to replicate and extend these preliminary findings.

KEYWORDS education, intervention, mindfulness, executive control, metacognition, behavioral regulation

A core area of development that underlies most behavior from childhood onward, throughout the lifespan, is executive function. Executive functions (EFs) encompass a host of interrelated, yet somewhat independent, processes involved in planning and carrying out regulated, goal-directed activity (Garon, Bryson, & Smith, 2008; McCloskey, Perkins, & Van Diviner, 2008; Welsh & Pennington, 1988). Working memory, mental set-shifting, and response inhibition are examples of core executive functions that map onto dimensions of behavioral self-regulation (Anderson, 2002; Blair & Diamond, 2008). Executive functions play a role in children's emerging academic abilities, above and beyond levels of general intelligence (Blair & Razza, 2007). Poor EF is associated with cognitive deficits, poor socio-emotional adjustment, and poor academic functioning (Biederman et al., 2004; Blair, 2002), which may manifest as a lack of concentration, a lack of understanding of cause and effect, an inability to understand mental states, and/or impulsivity (Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006). Such disruption in executive function is associated with behavioral characteristics of several childhood onset behavioral disorders including attention deficit hyperactivity disorder (ADHD), autism spectrum disorders, as well as other behavioral problems such as bullying and delinquency (K. C. Brocki & Bohlin, 2006; Hughes, White, Sharpen, & Dunn, 2000; Ozonoff, 1997). The growing body of research demonstrating concurrent and longitudinal associations between deficits in EF and both socio-emotional development and academic performance is indicative of the centrality of executive functions and their widespread impact across multiple areas of development (Blair & Razza, 2007; Hughes, Cutting, & Dunn, 2001; Riggs, Blair, & Greenberg, 2003).

Developmentally, EF emerges in the toddler period with a rapid spurt of development in EF capacities in the early childhood years (Diamond, 2002; Waber et al., 2007; Welsh, Pennington, & Groisser, 1991). The skills and processes associated with EF follow prolonged and multistage developmental trajectories through childhood and adolescence and show increases in efficiency with age (Blair, 2002; Blakemore & Choudhury, 2006; M. C. Davidson, Amso, Anderson, & Diamond, 2006; Murphy, Eisenberg, Fabes, Shepard, & Guthrie, 1999; Williams, Ponesse, Schachar, Logan, & Tannock, 1999; Zhou et al., 2007). Neurobiological studies of EF indicate extensive prefrontal cortical and anterior cingulate functioning with circuitry links to frontal-striatal assemblies (K. Brocki, Fan, & Fosella, 2008; E. K. Miller & Cohen, 2001). As a complex of interrelated processes, specific neural systems involved in attention, working memory, and inhibitory control play significant and varied roles in the overall mechanics of executive control (Diamond & Taylor, 1996; Espy, Kaufmann, McDiarmid, & Glisky, 1999; Gerstadt, Hong, & Diamond, 1994; Hudson, Shapiro, & Sosa, 1995). Because the functioning of the underlying neural systems is so intimately interconnected, improvements in one area may confer benefits to other areas of functioning (i.e., cognitive, behavioral, or emotional functioning; see, for example, Klingberg, Forssberg, & Westerberg, 2002); conversely, deficits in one area may disrupt functioning across systems. Therefore, exploring ways to promote EF early in life has potential for a wide-ranging impact on children's ongoing socio-emotional and academic development.

Mindful awareness practices (MAPs) are exercises that promote a state of heightened and receptive attention to moment-by-moment experience (Bishop et al., 2004; Siegel, 2007). Several practices or exercises are thought to increase this state of awareness including forms of meditation, yoga, and Tai-Chi (Allen, Blashki, & Gullone, 2006; Wall, 2005). A common exercise involves directing the attention to a present experience or sensation such as the movement of the belly during in-and-out breaths. Quite often the attention will wander periodically from its target object and a conscious recognition of this lapse in attention allows for the refocusing of awareness and drawing attention back to the chosen experience. Practicing mindfulness is likened to practicing a sport or playing a musical instrument, in that proficiency is cultivated through repetition and continuous practice.

Research suggests that accessing this open and receptive state of awareness can have beneficial health effects, both physically and mentally (R. J. Davidson et al., 2003; J. J. Miller, Fletcher, & Kabat-Zinn, 1995). Brain imaging and electroencephalography studies of meditation in adults suggest that MAPs can improve attentional regulation (Jha, Krompinger, & Baime, 2007; Zylowska et al., 2008) and emotional regulation (Arch & Craske, 2006), enhance metacognition (Teasdale et al., 2002), and correspond to neurophysiological changes associated with such processes (Brefczynski-Lewis, Lutz,

Schaefer, Levinson, & Davidson, 2007; Lazar et al., 2005; Lutz, Greischar, Rawlings, Ricard, & Davidson, 2004).

However, little research is available on the introduction of MAPs and their effects on processes of executive functions underlying behavioral and emotional regulation in children or adolescents. Napoli, Krech, and Holley (2005) evaluated a 24-week bimonthly mindfulness-based program in 194 elementary school children (first, second, third grades) with one half of students receiving the training and the other half a control activity (reading or quiet activities). The mindfulness program, which had a substantial yoga component, improved children's selective attention on performance of a computer task, increased attention and social skills as reported by teachers, and reduced test anxiety according to children's self-report. There are several less controlled studies of yoga, meditation, and Tai Chi in the classroom in children in primary grades. The purpose of the present study was to conduct a randomized control trial to investigate the introduction of a MAPs program over a shorter period of time, with an emphasis on sedentary activities to promote reflection, in second- and third-grade children, in order to evaluate its impact on EF processes as observed by teachers at school as well as by parents in the home. Based on previously conducted pilot work with preschool children suggesting that those with more behavioral dysregulation benefited more from MAPs training than children with less dysregulated behavior (Flook et al., 2008), we hypothesized that MAPs training would improve EF in children with poorer EF at baseline.

METHODS

Sample and Procedures

The sample consisted of 64 children (35 girls and 29 boys) from four separate second- and third-grade classrooms (age range 7–9 years, $M = 8.23$, $SD = 0.66$) at an on-campus university elementary school in Los Angeles. Sample sizes for the classes were as follows: class 1 consisted of two classrooms that were integrated ($n = 29$); class 2 ($n = 13$), class 3 ($n = 10$), and class 4 ($n = 12$) were single classrooms and therefore smaller in size. The sample was diverse in terms of children's ethnic backgrounds (45% Caucasian, 23% Latino, 14% Asian, 9% African American, and 9% other). Investigators sent letters home to parents inviting their children to participate in the research. Approximately 58% of parents returned signed consent forms, which were approved by the UCLA Institutional Review Board. Parents and teachers of participating students completed questionnaires at baseline and follow-up. Participants were randomized into either the MAPs program or control group, consisting of a silent reading period. Children were assigned to groups using block randomization with stratification by classroom, gender, and age (MAPs $n = 32$, control $n = 32$).

The MAPs training used in the current study is a curriculum developed by one of the authors (SKG). The program is modeled after classical mindfulness training for adults and uses secular and age appropriate exercises and games to promote (a) awareness of self through sensory awareness (auditory, kinesthetic, tactile, gustatory, visual), attentional regulation, and awareness of thoughts and feelings; (b) awareness of others (e.g., awareness of one's own body placement in relation to other people and awareness of other people's thoughts and feelings); and (c) awareness of the environment (e.g., awareness of relationships and connections between people, places, and things).

A majority of exercises involve interactions among students and between students and the instructor. Each class session contains three standard sequences and is designed so that the period of time students engage in reflective practices increases over the course of the program. The first sequence of each class session includes brief periods of sitting meditation (approximately 3 minutes in length) and the third sequence includes a modified body scan or meditation while lying down (approximately 5 minutes in length). The middle sequence contains activities and games that promote each week's learning objective; for example, sensory awareness, attentional regulation, awareness of other people, or awareness of the environment.

The duration of the first and third sequences gradually increases over the 8-week period as the second sequence, containing more goal directed and less reflective activities, becomes shorter in duration (see Appendix for an overview of the program and examples of activities). The MAPs program was delivered twice a week over 8 weeks, for a total of 16 sessions.

Outcome Measures

Teacher and parent reports were used to evaluate children's executive functioning. Teachers and parents completed the questionnaire prior to and immediately after the MAPs program.

Behavior Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, Guy, & Kenworthy, 2000). The BRIEF assesses executive function behaviors that serve to guide and organize cognition, emotion, and behavior in children ages 5 to 18. The teacher and parent versions of the BRIEF each contain 86 items that are rated on a 3-point scale indicating whether each behavior occurs *never*, *sometimes*, or *often*. For the purposes of this study, we asked parents and teachers to rate children's behaviors over the past month. The 8 clinical scales (Inhibit, Shift, Emotional Control, Initiate, Working Memory, Plan/Organize, Organization of Materials, and Monitor) form two broad indices (Metacognition Index and Behavioral Regulation Index), as well as an overall Global Executive Composite (GEC). Specifically, the Metacognition Index is comprised of 5 clinical scales (Initiate, Working Memory, Plan/Organize, Organization of Materials, and Monitor) and the Behavioral

Regulation Index consists of 3 clinical scales (Inhibit, Shift, Emotional Control). Raw scores were converted to *T*-scores for comparison across teacher and parent reports. Higher scores indicate more dysregulation in behaviors associated with executive function. The clinical scales, indices, and overall GEC showed good reliability on the Teacher BRIEF (alphas = .81–.98 at Time 1, alphas = .82–.97 at Time 2) and Parent BRIEF (alphas = .72–.97 at Time 1, alphas = .73–.98 at Time 2). Publishers of the BRIEF report test–retest reliabilities of .88 for teachers and .82 for parents (Gioia et al., 2000).

Statistical Methods

Data were analyzed using the statistical software SPSS, version 16.0 (SPSS, 2008). A double-entry verification procedure in SAS, version 9.1 (SAS, 2004) was used for data entry. A multivariate analysis of covariance (MANCOVA) was performed with posttest scores for the Metacognition Index (MI), Behavioral Regulation Index (BRI), and Global Executive Composite (GEC) as outcome variables. Group status was entered as a predictor, along with baseline EF score, and a group by baseline EF interaction. The interaction term examined the a priori hypothesis that baseline EF acted as a moderator of group status on posttest EF scores. The assumption of equal regressions was violated; therefore, we allowed the slopes to vary, functionally including baseline scores as a variable, and then interpreted the interactions. Class was dummy-coded and entered into the model as a covariate to control for classroom effects. MANCOVAs were specified separately for teacher and parent reports.

RESULTS

The primary EF outcomes were the Metacognition Index (MI), Behavioral Regulation Index (BRI), and Global Executive Composite (GEC) as reported by teachers and parents. Pre- and posttest scores for each group are presented in Table 1. Levene's test of equality of error variance was not significant for any of the outcomes (all $ps > .05$). Each MANCOVA (parent and teacher report) included the three primary EF scores at posttest entered simultaneously as the outcome variables, group as a fixed effect, baseline GEC as a factor along with class as a covariate, and an interaction between baseline GEC and group. The MANCOVAs showed no significant group main effects, indicating that there were no overall differences between the two groups from pre- to posttest based on either teacher or parent report (all $ps > .05$).

However, as shown by the significance of interaction terms, baseline levels of EF (GEC reported by teachers) moderated improvement in posttest EF for those children in the MAPs group compared to children in the control group. That is, on the teacher BRIEF, children with poorer initial EF (higher

TABLE 1 Teacher and Parent BRIEF Descriptive Statistics

	Teacher BRIEF		Parent BRIEF	
	MAPs ($n = 32$) *M* (*SD*)	Control ($n = 32$) *M* (*SD*)	MAPs ($n = 32$) *M* (*SD*)	Control ($n = 32$) *M* (*SD*)
			Pretest	
Metacognition Index (MI)	46.86 (8.27)	48.75 (9.41)	46.88 (9.83)	49.27 (11.57)
Behavioral Regulation Index (BRI)	47.91 (10.88)	52.44 (13.38)	45.19 (8.97)	48.32 (10.01)
Global Executive Composite (GEC)	47.09 (8.69)	50.13 (10.84)	46.08 (9.14)	48.88 (10.90)
			Posttest	
Metacognition Index (MI)	45.17 (5.63)	47.63 (9.23)	43.23 (9.31)	46.99 (11.31)
Behavioral Regulation Index (BRI)	46.87 (7.85)	51.96 (12.96)	42.40 (7.42)	46.22 (10.13)
Global Executive Composite (GEC)	45.53 (5.98)	49.21 (10.43)	42.51 (8.61)	46.52 (11.16)

Note. MI = Initiate + Working Memory + Plan/Organize + Organization of Materials + Monitor, BRI = Inhibit + Shift + Emotional Control, GEC = MI + BRI.

scores on BRIEF) who went through MAPs training showed improved EF subsequent to the training (indicated by lower GEC scores at posttest) compared to controls. The overall multivariate model (Wilks' lambda = .796, $F[3,55] = 4.70$, $p = .005$) as well as each of the individual outcomes was significant (MI: $F[1,63] = 6.94$, $p = .011$; BRI: $F[1,63] = 5.45$, $p = .023$; GEC: $F[1,63] = 13.63$, $p < .001$). The partial eta squared for the interaction term in this multivariate model (partial $\eta^2 = .204$) indicates that the interaction between baseline EF and group status accounted for 20.4% of the variance across all three EF outcomes. Partial eta squared values, in tests of between-subjects effects, for each of the individual outcomes were as follows: partial η^2 BRI = .087, MCI = .109, and GEC = .193.

Likewise, parents reported more improvement in EF for those children with initially poorer EF (higher GEC scores at baseline reported by parents) who went through MAPs training as compared to controls. Again, statistical tests of the overall model (Wilks' lambda = .838, $F[3,55] = 3.54$, $p = .020$) as well as each individual outcome were significant (MI: $F[1,63] = 6.18$, $p = .016$; BRI: $F[1,63] = 8.97$, $p = .004$; GEC: $F[1,63] = 8.31$, $p = .006$). The partial eta squared for this multivariate model (partial $\eta^2 = .162$) indicates that the interaction between baseline EF and group status accounted for 16.2% of the variance across all three EF outcomes reported by parents. Partial eta squared values, in tests of between-subjects effects, for each of the individual outcomes were as follows: partial η^2 BRI = .136, MCI = .098, and GEC = .127.

Posttest scores on GEC in the MAPs group compared to the control group, according to baseline EF scores, are depicted using actual data in

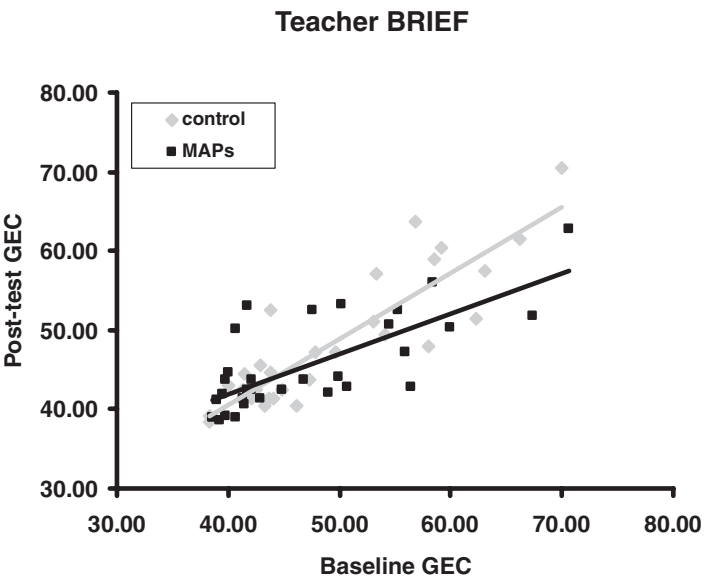

FIGURE 1 Group Differences in Posttest EF by Baseline Score on Teacher BRIEF. (*Note*. Lower scores reflect higher executive function. Improvement in executive function is indicated by a decrease in score from pre- to posttest.)

Figure 1 (teacher report) and Figure 2 (parent report). The relatively flatter slope for the MAPs group in each figure indicates that there was a significant reduction in EF scores (indicating improvement in EF) for children with higher baseline EF scores as observed by both teachers and parents.

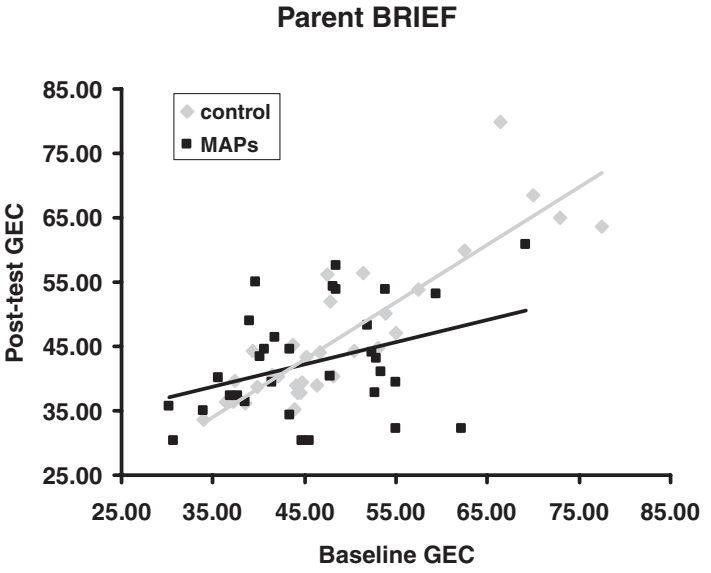

FIGURE 2 Group Differences in Posttest EF by Baseline Score on Parent BRIEF.

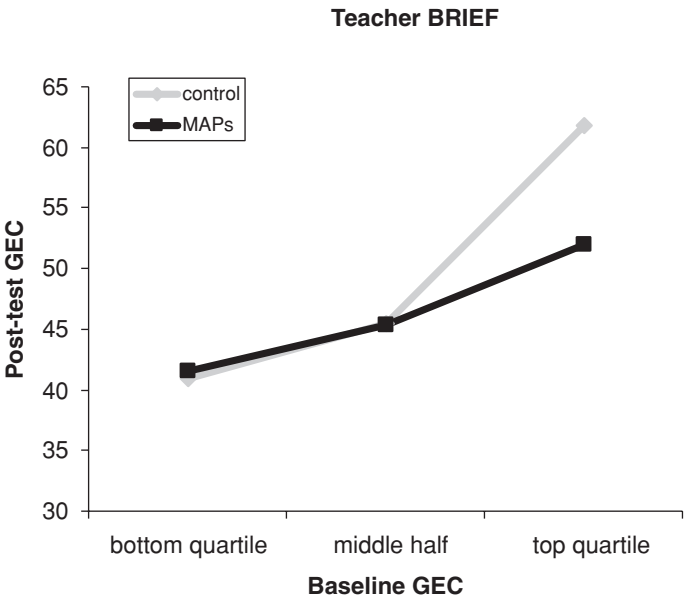

FIGURE 3 Mean Posttest EF Score for Children in MAPs Versus Control Group at Top Quartile, Middle Half, and Bottom Quartile of EF at Baseline. (*Note.* Lower scores reflect higher executive function.)

To illustrate this finding another way, using teacher report of EF, posttest scores for children in all four quartiles (of GEC scores) at baseline are shown for the MAPs versus the control group. As shown in Figure 3, a child who is in the top quartile at baseline (indicative of poorer EF) who receives MAPs training is expected to show significant improvement in EF compared to a child in the control group with a comparable score at baseline. However, for a child who scores in the bottom quartile (higher functioning EF) or middle half (average EF) at baseline, there is not a discernable difference in EF across the MAPs and control condition. These examples highlight differences between the MAPs and control group based on level of EF at baseline. A similar pattern of change emerged for both teacher and parent reports, suggesting that both teachers and parents noticed improvement in EF for children with initial difficulties who received MAPs training.

To further explicate these findings, the eight clinical scales that comprise the broader indices were also examined using MANCOVA. All eight scales were entered simultaneously as outcomes and the models were specified as described above in the previous set of analyses. Significant interactions between baseline GEC and group status in predicting posttest EF scores were found for the following scales as reported by teachers: Shift ($F[1,63] = 5.45$, $p = .023$), Initiate ($F[1,63] = 4.69$, $p = .035$), Plan/Organize ($F[1,63] = 6.58$, $p = .013$), and Monitor ($F[1,63] = 4.39$, $p = .041$). Organization of Materials approached significance ($F[1,63] = 3.63$, $p = .062$); however, the interaction

terms for the other teacher report scales at posttest were not significant: Inhibit ($F[1,63] = 2.65$, $p = .11$), Emotional Control ($F[1,63] = 2.23$, $p = .14$), and Working Memory ($F[1,63] = 2.54$, $p = .12$). Significant interactions between baseline GEC and group status in predicting posttest scores based on parent report were found for the following scales: Shift ($F[1,63] = 6.95$, $p = .011$), Emotional Control ($F[1,63] = 8.42$, $p = .005$), Initiate ($F[1,63] = 7.89$, $p = .007$), Working Memory ($F[1,63] = 5.78$, $p = .020$), and Monitor ($F[1,63] = 5.54$, $p = .022$). Inhibit ($F[1,63] = 3.08$, $p = .085$) and Plan/Organize ($F[1,63] = 3.69$, $p = .06$) approached significance; however, the Organization of Materials scale did not show a significant interaction effect according to parent report ($F[1,63] = .35$, $p = .56$).

DISCUSSION

Participation in a mindful awareness practices program was associated with improvements in behavioral regulation, metacognition, overall EF, and specific domains of EF based on teacher and parent report. Analysis of individual subscales showed that both teachers and parents reported improvement in children's abilities to shift, initiate, and monitor. These are central skills practiced by engaging in mindfulness exercises; that is, first bringing attention to the breath (initiate), then watching the breath and noticing whether the attention has wandered (monitor), and when the mind wanders bringing attention back to the breath (shift). Though these data are preliminary, the results are promising in that they were observed by separate informants across settings using an ecologically valid teacher and parent report measure of executive function. The BRIEF, used in this study to tap executive function, is recognized as an externally valid instrument, indicating its utility and applicability to children's real-life behaviors (Isquith, Gioia, & Espy, 2004).

Teachers are a rich source of information given that they observe children for several hours each day, across a variety of activities, in a structured setting, and have a wide reference group from which to form impressions and make comparisons. Results from parents' reports showing a pattern of change that parallels teachers' reports suggests that improvements in children's behavior generalized to outside of the school setting, such that parents observed changes at home as well. These initial findings suggest that introduction of MAPs—in the form of age appropriate games and exercises—is a potentially useful tool for improving executive functioning in elementary school age children.

The present findings suggest that mindfulness introduced in a general education setting is particularly beneficial for children with EF difficulties. Children who initially showed lower levels of EF who participated in the MAPs training exhibited EF in the average range after mindfulness training.

The movement toward mainstreaming in education makes such an approach suitable, in that all children can participate. Given that children may respond differently to various types of mindful awareness practices, understanding potential sources of individual variability in responsiveness to intervention and how to best tailor the practices accordingly is a topic for further investigation. Mindfulness training in after-school programs or targeted to special education populations are other potential modes of delivery. In addition, assessing other domains of functioning such as creativity or emotional regulation may detect other potential benefits of MAPs for children.

Further investigation of EF in elementary school samples would be useful to tease apart potential sources of variance. Clearly, if children with EF difficulties respond better to MAPs than children in the average range of EF, MAPs may prove useful in particular subgroups of children, such as those with EF deficits. Future research should include an active comparison group that involves an activity such as relaxation training or health education for greater comparability with the treatment. In addition, incorporating objective measures of neurocognitive task performance that may be more sensitive to detecting change in normative populations would be informative. The current data are based on informant report of dysregulated behaviors and therefore may be more likely to detect change at more extreme levels of dysregulation. The extent to which these behaviors reflect cognitive and neurological changes requires additional research with direct measures of cognition and neurophysiology. Lastly, teachers were not blind to group assignment, so a report bias cannot be completely ruled out. However, there is no evidence of systematic bias, given the within-group variability in children's behavioral changes reported by teachers; also, parents, who were blind to group assignment, reported a similar pattern of change. A multimethod approach with direct assessments of EF and behavioral observation in the classroom (by coders blind to treatment group) can provide additional sources of data for converging evidence. Conducting individual interviews with teachers would also be a rich source of information for capturing some of the details and nuance of individual experience that standardized instruments are not equipped to assess.

In conclusion, the findings are intriguing in light of the significant differences that emerged showing immediate effects, after a relatively brief intervention period (8 hours of formal training) in this small sample. We consider these pilot data useful for directing attention to the application of mindful awareness programs in elementary school–age children. Future research into the use of these practices in young children should include refinements such as follow-up assessments to determine whether additional changes emerge after an "incubation" period. That is, skills that are learned might show further development that translates into observable changes in behavior after a sustained period of practice and absorption; therefore, follow-up, for example, at 2 months and 6 months postintervention, could address this

issue. Also, the extent to which gains are maintained, the generalizability of skills learned in the classroom setting to behavior outside of school, and the optimal time frame and format for delivery of intervention should be examined. Furthermore, because change in executive function is expected to underlie change in other behavior, direct assessments of proximal neurobiological processes in relation to more distal outcome indicators such as school performance and classroom behavior, directly observed by raters blind to treatment group, would provide valuable information. Introduction of these types of awareness practices in elementary education may prove to be a viable and cost-effective way to improve EF processes in general, and perhaps specifically in children with EF difficulties, and thus enhance young children's socio-emotional, cognitive, and academic development.

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APPENDIX

InnerKids Program Description

Overview. The InnerKids program teaches secular and age-appropriate games and activities that (a) are targeted toward increasing a child/teen's capacity for present moment and felt-sense awareness of inner experience (his or her own experience), outer experience (other people's experience) and both together without blending the two; and (b) promote kindness, compassion, balance, and teamwork. Many of the activities are movement based and involve interaction between students and teachers.

InnerKids courses are designed so that the length of time students engage in introspective activities gradually increases over the course of the program. Each class session is broken down into three sequences. The first sequence includes a brief period of sitting introspective practice, and the third sequence includes a longer period of introspective activity while lying down. The middle sequence contains activities and games that promote each week's learning objective (for example, breath awareness, sensory awareness, attentional regulation, kindness, teamwork, or compassion). The length of the first and third sequences gradually increase over the course of the program as

the length of the second sequence, which contains more goal-directed activities, decreases in duration. By the conclusion of the multisession program, children are engaged in some form of introspective activity for the majority of each class session.

The multisession program is divided into four sections, each section taking approximately one to four sessions to complete.

Section 1—Awareness of Inner Experience, Focusing on Breath

Awareness Practices

Objective: To develop a present moment and felt-sense understanding of breath awareness and impermanence (the changing nature of all things).

Typical activities that promote breath awareness and develop focused attention are mindfulness of breathing practices while sitting and lying down.

Kindness Practices

Objective: To develop a present moment and felt-sense understanding of extending kindness toward oneself.

Typical activities that promote self-compassion and empathy are guided visualizations where a child imagines him- or herself in a safe place feeling happy, healthy, strong, and safe.

Section 2—Awareness of Inner Experience, Focusing on Sense Impressions

Awareness Practices

Objective: To develop a present moment and felt-sense understanding of the changing nature of inner experience, emphasizing sense impressions and clearly seeing inner experience without bias.

Typical activities that promote awareness of sense impressions and the body are practices in mindful eating, mindfulness of sound, and mindfulness of touch.

Kindness Practices

Objective: To develop a present moment, felt-sense understanding of extending kindness toward others.

Typical activities that promote kindness to others are guided visualizations where a child imagines him- or herself inviting other people to a safe place where everyone is happy, healthy, safe, and strong.

Section 3—Awareness of Inner and Outer Experience Focusing on Thoughts and Emotions

Awareness Practices

Objective: To develop a present moment and felt-sense understanding of the changing nature of inner and outer experience emphasizing awareness of thoughts, emotions, and an understanding that actions have consequences.

Typical activities that promote awareness of inner and outer experience are games where children observe thoughts, emotions, and physical sensations as they come, go, and change.

Kindness Practices

Objective: To develop a present moment and felt-sense understanding of extending to others compassion and happiness for their good fortune.

Typical activities that promote compassion and joy are guided visualizations where a child imagines other people in situations where they are happy, healthy, safe, and living in peace.

Section 4—Awareness of Inner and Outer Experience Without Blending the Two Together, Focusing on Interconnection and Service

Awareness Practices

Objective: To develop a present moment and felt-sense understanding of outer experience emphasizing awareness of other people, the environment, and impermanence.

Typical activities that promote awareness of outer experience and attunement with others are mirroring practices where children mimic (or mirror) other students' physical movements.

Kindness Practices

Objective: To develop a present moment and felt-sense understanding of equanimity, balance, and interconnection.

A typical activity that promotes interconnection is to suggest that a child imagines the trajectory of an apple from seed to stomach. First the child imagines it as a seed, then the seed being planted, and then watching how light and rain helped the seed grow into a tree that bore fruit. Then he or she imagines the apple as it was harvested, taken to the store, purchased, washed, and packed into his or her lunch box by mom, dad, or someone else who is in a close, loving relationship with the child.

Notes

- There is overlap throughout the program of mindfulness themes and objectives. For example, practices that promote awareness of outer experience may be incorporated into classes as early as the first week where the primary objective is breath awareness (awareness of inner experience). Similarly, practices that promote breath awareness are included in later class sessions that emphasize awareness of outer experience.
- Movement is an important element of InnerKids classes. In every class there are practices that involve sitting, moving, and lying down.
- The orientation of every session is on the process of mindfulness itself as opposed to an end result or specific goal.
- The program follows a structured format but requires flexibility with respect to teaching particular activities/games to accommodate unexpected classroom events due to weather, schedule changes, student fatigue, student interpersonal dynamics, or student excitability.

Sample Activity Typically Used During the First Sequence of a Class Session Where Children Interact With Each Other and the Facilitator

Hello/Greeting Activity

One at a time in the circle, students take turns making eye contact and greeting each other. This activity takes place in a group with interaction between the students, their friends, and the facilitator.

Objectives.

- To make eye contact when children greet one another.
- To become increasingly comfortable with maintaining sustained eye contact over time.

Duration. 5 minutes.

Supplies. Cushions.

Leading the exercise. Students and the facilitator sit in a circle (often cross-legged on the floor). To begin, the facilitator says hello to the student sitting to her right, establishing eye contact and calling the student by name. After greeting her, the facilitator describes what color that student's eyes appear to be. For example, "Good morning Alex, your eyes look brown to me today." The student responds, "Good morning Mrs. Smith, your eyes look blue today." The student then turns to the next person in the circle and repeats the exercise. The greeting moves around the circle, from person to person, until every one has had a turn. The greeting is phrased to reinforce the objective to observe rather than analyze ("Your eyes look blue" as

opposed to "your eyes are blue.") This phrasing also helps avoid disagreements among students with respect to eye color.

Once the students are familiar with the exercise, the facilitator might change the prompt from eye color to something else; for instance, "Making eye contact, greet your neighbor and then tell the class something that you're noticing through one of your five senses right now." For example, "I see the globe across the room," or "I feel the cold floor against my ankle," or "I hear the furnace roaring in the next room," or "I smell cookies baking in the oven," or "I taste my peppermint gum."

At the end of the exercise, children discuss the experience. Sometimes children also express their feelings about the experience by writing about it or drawing a picture.

Sample Introspective, Breath Awareness Activities Typically Used During the First Sequence of a Class Session

Sitting Breath Awareness Practice

This guided breath awareness practice is a sedentary activity that takes place in a group; however, typically, there is little to no interaction between the students, their friends, and the facilitator.

Objective. The primary objective of this activity is for students to focus on the physical sensation of breathing in the present moment while sitting.

Supplies.

- Cushions
- Focus rocks, stuffed toy, drum, or other object to place in the center of the circle (optional)

Leading the exercise. In a circle with focus rocks in the center, students sit cross-legged with their eyes softly focused on the object in the center of the circle or with their eyes closed. Directing students to pay attention to their breath, the facilitator asks them to feel the movement of the breath through their bodies. If they find it helpful, children may place their hands on their bellies to focus on the physical sensation of breathing (the up-and-down movement of breath in their belly). Facilitators specifically ask children not to change or modify their breath in any way but to observe how it feels as it is in the present moment. Here are some examples of questions and statements facilitators use while leading the exercise:

The facilitator may invite students to consider three separate parts of breathing: the in-breath, the out-breath, and the pause in between.

> See if you can pay attention to absolutely everything about your in-breath. How do you feel? Where in your body do you feel your breath

> the most? Near your nose, near your chest, near your belly, somewhere else? Is it fast? Is it slow? Is it cool? Is it warm? Is it smooth? Is it rough? How does your body feel now? (Repeat a similar set of questions about the out-breath.)
> Does anything happen between the in- and the out-breaths? How about between the out- and the in-breaths? See if you can notice the beginning and the end of each inhale and each exhale, and the pauses in between. See if you can catch the very first moment of your next breath. What does the very first part of the breath feel like? Do you feel your breath moving? Now see if you can follow the movement of breath through your body from the very first moment for the in-breath through to the end of the inhale, feeling every moment. Next, try to follow the movement of breath through your body from the first moment of the out-breath through to the end of the exhale, feeling every moment. See if you can keep your attention on your breathing in this way, from the very beginning of your next breath to the end of it, all the way in, and all the way out.

The first few times a child pays attention to the visceral sense of her breathing it is not uncommon for her to become aware of something about breathing that makes her feel physically or emotionally uncomfortable. Maybe she notices that her breathing is constricted, or that she breathes through their mouth and not her nose and doesn't like it, or that she has feelings/emotions she had not recognized before. Regardless of what shows up in her awareness, the practice remains the same:

> See if you can notice what happens in your mind and body without thinking about it much; without thinking about why or why not something is happening. If you become distracted from your breathing that's okay, it happens to everybody; once you notice you're distracted simply return your attention to the visceral sensation of breathing. Guess what? The moment you notice you're distracted, that's a moment of mindful awareness!

At the end of the exercise, children discuss the experience. Sometimes children also express their feelings about the experience by writing about it or drawing a picture.

Breathing With a Pinwheel

This guided breath awareness practice is a sedentary activity that takes place in a group; however, typically, there is little to no interaction between the students, their friends, and the facilitator.

Objectives. The primary objective of this activity is for students to focus on the physical sensation of breathing in the present moment while blowing on a pinwheel and make connections between different ways of breathing

(e.g., quickly, slowly, deep breaths, shallow breaths) and related physical and emotional states.

Duration. 1–5 minutes.

Supplies. Pinwheel.

Leading the exercise. There are several variations on this activity, each highlighting a specific quality of the breath or making a connection between certain ways of breathing and related physical and emotional states. The foundational practice is to take a long in-breath through the nose and blow on a pinwheel with a long out-breath through the mouth, encouraging children to pay attention to how their bodies feel taking long breaths. In the second variation, children take a series of short in-breaths through their nose, blowing out with a series of short out-breaths through the mouth. Again the focus is on how they feel while taking short breaths.

At the end of the exercise, children discuss the experience. Sometimes children also express their feelings about the experience by writing about it or drawing a picture.

Sample Movement-Based Introspective Activities Typically Used During the Second Sequence of a Class Session

Slow and Silent Walking and Pendulum Activities

In these two practices, derivative of classical walking meditation, students bring awareness to the visceral feeling of their bodies when they move deliberately. These guided breath awareness practices take place in a group; however, typically, there is little to no interaction between the students, their friends, and the facilitator.

Objectives.

- To increase body awareness.
- To increase concentration.
- To provide an alternative introspective practice for children who have difficulty sitting or lying still.

Duration. Between 1 and 10 minutes.

Supplies.

- Cushion
- Focus rocks, stuffed toy, drum, or other object to place in the center of the circle (optional)
- Drum (for modifications)

Leading the exercises.

- Slow and Silent Walking: There are three main movements in slow and silent walking: lifting the foot and leg, moving it forward, and placing it back down. Facilitators instruct children to first pay attention to only one aspect of walking; it could be the act of placing the foot on the ground—specifically, the physical pressure on the soles of the feet when one foot steps on the ground—or any other aspect of stepping. The objective is to remain focused on the physical sensation of one aspect of walking, whether it is lifting, moving, or placing. After a few sessions of this exercise, the facilitator may instruct older students to pay attention to two aspects of walking: lifting up *and* stepping down, for example, or moving forward *and* placing the foot on the ground. Eventually, older students will pay attention to all three aspects—lifting, moving, and placing.
- Pendulum Practice: The aim of this practice is to help children find and establish a repetitive, rhythmic swing that is soothing to them and helps them focus. Facilitators use the classical instructions for slow and silent walking as a reference point when teaching the pendulum. Just as there are three main movements in walking—lifting, moving, and placing—there are three main movements in the pendulum—moving, shifting, and center. In both slow and silent walking and the pendulum, the movement can at first be awkward as it's broken down into sections, but over time it becomes easier and the flow of the movement more natural.
- Modification of Pendulum for Young Children: To help younger children stay focused during the pendulum, it's useful to use the following rhythmic verse along with the beat of the drum. The facilitator plays the drum while she calls out, "Tick / Tock / Like / A Clock / Until / We Find / Our Center," rocking to the alternate side for each beat. When "Our Center" is called out, everyone lands in a balanced, cross-legged pose on the center of their cushions.

Please note that the object of these movement practices is not to become absorbed in the sensory experience but to become aware of how it feels.

At the end of the exercise, children discuss the experience. Sometimes children also express their feelings about the experience by writing about it or drawing a picture.

Hopping Game

This movement exercise integrates activities that promote mindful attunement to other people, breath awareness, and concentration. In this exercise,

students hop over cushions that are placed on the floor in a circle, in unison, to the beat of a drum. Children work together to hop in unison and keep the circle in tact. Teamwork is crucial in this exercise and there is significant interaction between the children, their friends, and the facilitator.

Objectives.

- To increase awareness of several aspects of present moment experience, specifically: awareness of self (e.g., breath awareness, awareness of sound, awareness of where one's body is in space) and awareness of other people.
- To develop concentration skills.

Duration. 5–10 minutes.

Supplies.

- Cushions
- Drum

Leading the exercise. This hopping game integrates mirroring with breath awareness and concentration activities.

Children make a choo-choo train by standing in a circle with each student facing the back of the student next to her. A cushion is placed between each student. The facilitator is in the center or outside of the circle holding a drum. To start the game, everyone stands upright and still, focusing on the visceral sensation of breathing in and breathing out. Students wait for verbal prompts from the facilitator: Stand (standing upright and still, body controlled and relaxed), breathe (feeling the visceral sensation of breathing), focus (on the cushion in front of you), and hop (hop over the cushion). Each time the facilitator calls out the instruction "hop" she strikes the drum. When students hear the drumbeat, they jump over the cushion in front of them. Students then return to standing and wait for the next set of prompts.

As children become more experienced, the facilitator will make the game progressively more difficult by reducing the number of verbal prompts. The fewer the prompts, the faster the train moves. The prompts go from, "Stand, breathe, focus, hop" (with a drumbeat on the prompt "hop") to "Breathe, focus, hop" to "Focus, hop" to "Hop," until ultimately, students are cued only by the drum beats and students hop over cushions around the circle with no verbal prompts at all. Repeat until students have hopped all the way around the circle one or more times. A large class can be broken down into smaller groups for this activity, with each group making their own train or circle. The game promotes not only sensory awareness but awareness of other people.

Sample Introspective Activity Typically Used During the Last Sequence of a Class Session

Breathing With a Stuffed Animal

Relaxing, and lying flat on the floor, children focus on the visceral sensation of their breathing. When working with young children, facilitators place a stuffed animal or pillow on their bellies to help them feel the breath moving in their bodies. This guided breath awareness practice is a sedentary activity that takes place in a group; however, typically, there is little to no interaction between the students, their friends, and the facilitator.

Objectives. The primary objective of this activity is for students to focus on the physical sensation of breathing in the present moment while lying still on their backs.

Duration. 5–15 minutes (depending on the level of the class).

Supplies.

- Cushion
- Stuffed animal

Leading the exercise. Students lie on their backs, with arms and legs straight and resting flat on the floor. Once the children are comfortable, the facilitator will place a stuffed animal (or other soft object) on each child's tummy and encourage her to relax and pay attention to the physical sensation of breathing. The following are examples of what the instructions for this exercise might sound like in a facilitator's own words:

> Feel your head against the pillow. Your back against the floor. Your arms by your sides. Feel the weight of the stuffed animal on your belly. Now imagine that you're giving the animal a gentle ride with your breath; as you breathe in, your belly fills with air and the animal rocks up, as you breathe out your belly empties and goes down. Breathing in, the animal rocks up and breathing out, the animal rocks down. You don't have to change your breath or do anything at all, just notice how it feels as you breathe in and out.

The facilitator can suggest any or all of the following depending on the students' capacity to comfortably remain still and quiet over an extended period of time. The instructions are similar to those used during other breath awareness activities.

- By focusing on your breathing it may change on its own; for instance, it may become slower and deeper.
- By focusing on your breathing the space between the breaths in and breaths out may become longer.

- By focusing on your breathing your body may begin to feel differently; maybe you feel more calm and relaxed; maybe it becomes easier to lie still and your mind may naturally slow down and become quieter as well.

At the end of the exercise, children discuss the experience. Sometimes children also express their feelings about the experience by writing about it or drawing a picture.

Sample Activity to Encourage Kindness and Compassion Typically Used During the Last Sequence of a Class Session

Friendly Wishes

The teacher guides the class in sending *friendly wishes* (known in the classical tradition as loving kindness) into the world; wishes that all beings be happy, safe, healthy, and live in peace. Friendly wishes practice begins with the child picturing herself resting in a safe place where she is healthy, happy, peaceful, and at ease. The practice continues as the child silently sends friendly wishes to progressively larger and larger groups of people, places, and things until she has sent aspirations of happiness and well-being to everyone and everything. This is a sedentary activity that takes place in a group; however, typically, there is little to no interaction between the students, their friends, and the facilitator.

Objectives.

- To increase the length of time students are able to focus on the visualization over time.
- To learn self-directed practices that evoke emotions to help calm and sooth the mind.
- To encourage compassion for self and others.

Duration. 3–15 minutes.

Supplies.

- Cushions
- Stuffed animals (optional)

Leading the exercise. Typically, when used at the end of a class session, the facilitator prepares students for this exercise with a body scan or breath awareness exercise while lying on their backs on the floor. Using conversational language, the facilitator then guides the class through one or more friendly wishes aspirations. The following are examples of what friendly wishes might sound like in a facilitator's own words:

- A child first sends friendly wishes to herself imaging that she is

  > Happy and having fun; that she's healthy and safe with her family and friends.

- Next, a child chooses someone she cares about, hopefully someone in the room with her, and imagines looking into the other person's eyes and speaking aspirations that are meaningful to her; for example:

  > I want you to be happy, I hope all your dreams come true, I want you to be healthy and strong, I want you to feel lots of love in your life, I hope you feel peaceful and calm, I want you to be safe always.

- The facilitator then leads the child through a sequence where she imagines sending friendly wishes to other people who aren't in the room, starting with her family and friends; to people she's met; to those she hasn't met yet but would like to meet; until finally she imagines sending friendly wishes to everyone and everything.

  > I hope you're happy, I hope that you're healthy and have a lot of fun, that you're safe and never get hurt, and that you live in peace with people you love.

- With young children facilitators may choose to close the circle of friendly wishes by asking the child to internalize them again and imagine herself in a cozy and safe place feeling:

  > Happy, healthy and strong, and living in peace with her family, her friends, her pets, and all those who she loves.

At the end of the exercise, children discuss the experience. Sometimes children also express their feelings about the experience by writing about it or drawing a picture.