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Preliminary Evidence on the Efficacy of Mindfulness Combined with Traditional Classroom Management Strategies

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Abstract The current case study combined mindfulness-based strategies with a classroom behavior management treatment package, to assist teachers with managing 3rd grade student behaviors. Two teachers (Classroom teacher and Specials teacher) and six students within the same classroom were observed using a 5-min momentary time sampling procedure. A delayed multiple baseline across settings (e.g., Classroom teacher, Specials teacher) design was used to assess student behaviors across baseline (A), classroom behavior management treatment package (CBM) (B), CBM plus mindfulness (C), and CBM plus mindfulness and self-monitoring (D) for two students. Behavioral treatment alone increased on-task behaviors for four of six (66%) students compared to baseline; however, five of six (83%) students increased and sustained high rates of on-task behaviors when mindfulness exercises were added to the behavior analytic techniques. These preliminary results support the combination of mindfulness-based strategies with traditional behavior

analytic interventions for increasing student on-task behaviors in classroom settings.

Behavior analytic interventions have been used in classroom settings to attenuate for issues with traditional classroom management strategies (e.g., Armendariz & Umbreit, 1999; Doggett, Edwards, Moore, Tingstrom, & Wilczynski, 2001; Gresham, 2004; Lee, Sugai, & Horner, 1999). A behavior analytic approach not only objectively identifies both skill deficits and overt problem behaviors, but also utilizes quantitative measures of behavior to make intervention decisions and denote behavior change. Antecedent manipulations (e.g., desk arrangements, Wannarka & Ruhl, 2008; signals, Tiger & Hanley, 2004; structured transitions, Guardino & Fullerton, 2014) and consequential interventions (e.g., differential reinforcement, Daddario, Anhalt, & Barton, 2007; self-monitoring, Dalton, Martella, & Marchand-Martella, 1999; reinforcer systems, O'Leary & Drabman, 1971) have been found to be successful at changing behaviors in classroom settings. Further, behavior analytic class-wide teaching programs (e.g., Hanley, Heal, Tiger, & Invgarsson, 2007) have also been found to positively affect student behaviors.

Recent attention has been paid to mindfulness-based intervention strategies across a range of settings (e.g., clinical settings, Baer, 2003; elementary schools, Felver, Frank, & McEachern, 2014), populations (e.g., primary school teachers, Gold, Smith, Hopper, Herne, Tansey, & Hulland, 2010; direct care staff, Singh, Lancioni, Wintson, Curtis, Wahler, & McAleavey, 2006; parents of children with disabilities, Singh, Lancioni, Winton, Singh, Curtis, Wahler, & McAleavey, 2007), and behaviors (anxiety and depression,

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Hofmann, Sawyer, Witt, & Oh, 2010; aggression, Singh, Wahler, Adkins, Myers, & Mindfulness Research Group, 2003) Mindfulness-based interventions emphasize nonjudgemental focus and awareness of internal and external stimuli in the present moment (Hayes, 2004; Kabat-Zinn, Massiou, Kristeller, Peterson, Fletcher, et al., 1992). Further, mindfulness-based interventions have been shown to be effective with behaviors maintained in some way by negative reinforcement (see also Baer, 2003).

While mindfulness-based approaches to behavior management have been found to promote behavior change and generalized improvements across environments (Baer, 2003; Felver et al., 2014; Felver, Doerner, Jones, Kaye, & Merrell, 2013), to date, mindfulness interventions have only minimally been used in primary educational settings (Meiklejohn, Phillips, Freedman, Griffin, Biegel, et al., 2012). In one study, Wilson and Dixon (2010) conducted a mindfulness-based intervention with 2nd and 3rd grade students in an elementary classroom. Student attending was identified as any instance when the student was engaged in what was occurring at that particular time in the classroom (e.g., eyes on the teacher or student talking, completing or looking at worksheet or materials, etc.). Using a momentary-time sampling procedure, students were observed in a rotation for 10-s intervals and were scored as attending or not attending throughout the interval. During the intervention, students were exposed to a range of mindfulness-based exercises including the following: the silent game, breathing exercises, noticing self exercises, and mindful eating. Before mindfulness exercises were introduced, students were attending during 60–70% of intervals. During the mindfulness intervention, students were attending during 80–100% of intervals; however, when the mindfulness intervention was withdrawn, student attending returned to baseline levels. These results support the use of mindfulness as an effective short-term intervention for increasing student attending, which should be administered regularly to maintain behavioral gains. Additional research, however, is needed to verify and replicate these results.

Research on the clinical utility of mindfulness-based interventions in the classroom are increasing, yet little is known about the extent to which mindfulness can assist with traditional behavior management techniques. For instance, it is unknown how mindfulness exercises combined with common behavioral interventions (e.g., differential reinforcement, reinforcer incentive systems, antecedent manipulations, etc.) would impact student behavior. Therefore, the purpose of the current case study was to replicate the mindfulness protocol developed by Wilson and Dixon (2010) in a general education 3rd grade classroom after implementation of behavioral interventions (e.g., signals, transition timers, differential reinforcement

of alternative behaviors, incentive system). We predicted that combining mindfulness with behavior management techniques would increase student engagement in on-task behaviors.

Method

Participants, Setting and Materials

Twenty-one 3rd grade students (M age = 8.5; 61.5% male) and two female teachers (M age = 54; Classroom and Specials teacher) participated in the current case study. The Classroom teacher was the students' primary teacher, while the Specials teacher came into the class to teach one 30-min class period twice weekly. The class was referred for services by the school social worker and classroom teacher, both of whom expressed concerns with student behavior. Six students (50% female) were selected by the social worker and classroom teacher due to continued behavioral challenges. These selected students were observed by the researchers throughout the study.

All study procedures took place at a K-8 school located in an urban city in the Midwest United States. All observations took place in one classroom (10 m by 21 m) containing student desks, a large teacher's desk, a Smart Board, a computer, a large white board, and shelves containing supplies (e.g., crayons, markers, scrap paper, books). One observer, one teacher, and up to twenty-one students were in the classroom during all observations. Teacher training took place in the same classroom during and directly following classroom observation sessions.

Materials used throughout classroom observations included the following: pencils, loose-leaf paper, and a timer. A Smart Board was used to display the visual timer for students during structured transitions. Materials used during mindfulness exercises included a metronome for breathing exercises and various edibles for mindful eating (e.g., Hershey's kisses, Starbursts, etc.). Self-monitoring data sheets were printed on white paper (215 mm by 280 mm). Passes earned during self-monitoring phases (e.g., teacher helper pass, break pass, color pass) were printed on laminated white paper (40 mm by 70 mm).

Dependent Measures and Interobserver Agreement

The classroom teacher identified student behaviors of concern, and the researchers developed specific observational definitions of targeted student behaviors.[1] The primary dependent

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[1] Teacher behavior was operationalized and collected using similar MTS procedures; however, it is omitted herein. Teacher behavior data is available upon request.

variable was engagement in on-task behaviors, defined as remaining within 1 ft of one's desk and interacting with materials as to participate in current classroom activity, across both Classroom and Specials teachers. On-task behavior was recorded across 5-min intervals using momentary time sampling (5-min MTS). Data were collected at the end of each 5-min interval, and researchers recorded if the specific student was engaged in on-task behavior at the end of the interval. Student engagement in on-task behavior was measured by calculating the percent of intervals the student engaged in on-task behavior during each observation.

Observations were conducted by researchers three to four times weekly, and were conducted at random times throughout the school day.

Interobserver agreement (IOA) was collected on student engagement in on-task behavior for 6% of the total observational sessions. Interval-by-interval IOA was scored, wherein total agreements were divided by agreements plus disagreements, multiplied by 100. Total agreement was 91% (range = 85–97%).

Experimental Design and Data Analytic Procedures

A delayed multiple baseline design across settings (e.g., teachers) was selected to compare the effects of a behavioral treatment package alone and paired with mindfulness exercises on class-wide outbursts and individual student behavior. Six students were observed across three intervention phases: classroom behavior management as usual (e.g., baseline (A)), classroom behavioral management treatment package (B), and classroom behavioral management treatment package plus mindfulness (C); while two students (Stephen and William) were exposed to an additional self-monitoring (D) phase.

In addition to visual analysis, we calculated effect sizes to assess the effects of the classroom behavior management treatment package with and without mindfulness. Standard mean difference (SMD) effect size statistic (d) was selected because it offers advantages for calculating effect sizes for multiple treatment phases assessed within single subject studies (Olive & Franco, 2008). To determine d (the effect size of each intervention), the mean of responding in baseline was subtracted from the mean of each treatment phase, and the subsequent total was then divided by the standard deviation of responding during baseline. Effect sizes are interpreted using Cohen's (1988) rule, whereas $d = 0.2$ is small, $d = 0.5$ is medium, and $d = 0.8$ is large.

Procedures

Students were first observed during a baseline condition, in which observers recorded data and did not intervene. Next, teachers were sequentially trained to use antecedent manipulations (e.g., a signal and transition timer), differential reinforcement (e.g., ignoring student vocal outbursts, prompting students, delivery reinforcers for

on-task behaviors), and allocation of responding to positive praise comments over negative comments. To the authors' knowledge, students were not previously exposed to these common classroom management strategies before the study. Mindfulness exercises were subsequently added to further increase student on-task behavior using procedures similar to Wilson and Dixon (2010). Finally, self-monitoring (with contingent reinforcement) was added for two students (Stephen and William) whose on-task behavior decreased following mindfulness.

Baseline

This phase represented responding during class as usual (e.g., pre-intervention). During baseline, observers collected data on student and teacher behavior in the classroom without intervening or providing feedback. Observers first watched selected students for 5–10 s at the onset of each observation session and recorded data for that interval (5-min MTS), then continued to take data on teacher comment types for the remainder of the 5-min interval. At the end of each 5-min interval, selected student behavior was again observed for 5–10 s and recorded for the next interval, and the observation process started over.

Classroom Behavior Management Treatment Package

Researchers trained both teachers the following skills using behavioral skills training (BST): (a) use of a signal to obtain student attention (e.g., clapping sequence to be repeated by students), (b) use of a transition timer (e.g., visual countdown timer on Smart Board during activity transitions), (c) ignoring inappropriate student behavior, and (d) implementing a reinforcer incentive system. Four 30-min training sessions occurred for the first 2 weeks, and 15 min follow-up sessions occurred directly following classroom observation sessions for the remainder of the study. The classroom teacher was first trained on each of the four skills, and once positive responding increased, the Specials teacher was trained in the same way. During each training session, teachers were provided instructions on implementing the treatment package, modeling of each strategy by the researchers, in vivo rehearsal and feedback with researchers. During follow-up sessions, rehearsal and feedback components took place directly after class time. Table 1 represents all specific instructions given to teachers across skill. The following skills were trained accordingly:

Signal Teachers were trained to use a signal (e.g., hand clapping sequence) to gain student attention during class-wide verbal outbursts and before giving directions.

Transition Timer. Teachers were trained to use the previous signal to gain student attention, give directions, and specify an amount of time to complete the directions given. The teacher would then start a visual timer, and provide only gestural prompts or brief reminders of the time remaining while

Table 1. Components of skills trained during teacher training

Skill trained	When skill was used	How skill was completed	Materials needed
Signal	Before providing a large directive or starting a transition	Chose a signal (e.g., clapping sequence)	N/A
		Chose a student response to this signal (e.g., quite voice, eyes on teacher, no moving around)	
		Used the signal and waited for appropriate student response	
		Provided verbal praise for successful students (e.g., differential reinforcement)	
		Provided verbal feedback and repeated signal for practice if class was unsuccessful	
Transitions	When moving to a different activity or area	Used signal to get attention, provided directives, and stated amount of time to complete	Visual Timer
		Started timer	Any items related to preferred activities
		During timer, provided gestural prompts or referred to time remaining	
		Provided reinforcement directly after successful transitions (chose randomly from a list of brief preferred activities)	
		Provided verbal feedback to class if unsuccessful with transition time	
		Increased or decreased future transition times	

Table 1. (continued)

Skill trained	When skill was used	How skill was completed	Materials needed
		allotted according to student success	
Differential Reinforcement	Anytime appropriate or inappropriate student behavior was observed	Provided verbal praise for appropriate behaviors	N/A
		Ignored inappropriate behaviors	
		Used gestural prompts or proximal distance with students who continued to exhibit inappropriate behaviors	
Reinforcer Incentive System	Anytime repeated appropriate or inappropriate student behavior was observed	Students started on a neutral color, and were asked to move their name either up in accordance with appropriate behavior	Any items related to preferred activities
		Provided time for preferred activities at the end of each week for students who maintained a positive color for a set amount of days of the week	
		Provided large preferred item or activity (e.g., movie in class, breakfast with the teacher) for those students who maintained a positive color for a set amount of days of the month	

N/A not available

students completed the directions given. Delivery of reinforcers was contingent on the successful completion of transitions. For the first 2 weeks, the classroom teacher chose a preferred activity (chosen from a list of preferred activities created by the class) to be engaged in for approximately 3–5 min before beginning the next academic activity. Such activities included Hangman, Heads Up 7-Up, and telling jokes to the class. After 2 weeks of immediate reinforcement after transitions, the students then accumulated time on the board

after each successful transition, which was then used at the end of the day to engage with greater magnitude reinforcers (e.g., kickball, board games). If the class was not successful, they did not receive an opportunity to engage in the preferred activity, were provided brief verbal feedback on performance during the transition, and had to move on to the next academic activity without a break.

Differential Reinforcement Teacher training also involved the use of visual and verbal feedback based on teacher comment type and affect. Baseline rates of comment and affect types were discussed with the teacher, and areas of improvement were agreed upon. Teachers were then trained to reframe comments with a positive affect through modeling and rehearsal (e.g., co-teaching) with the researcher during class time. Teachers practiced ignoring inappropriate behaviors and addressing or praising those students who were on-task or raised their hand to talk. Observers provided brief verbal feedback to teachers directly after all modeling and training sessions.

Reinforcer Incentive System Teachers were trained to implement a reinforcer incentive system involving a color system in which students could move either up the chart by engaging in appropriate behaviors, or down the chart by engaging in inappropriate behaviors. Reinforcement was then provided at the end of the week to students who maintained a positive color for a set number of days per week. At the end of the month, students could access a reinforcer (e.g., movie during class, breakfast with the teacher) if they had maintained a positive color for a set number of days per month.

Mindfulness Exercises

The mindfulness exercises were derived from Wilson and Dixon (2010), and were implemented by the researchers. Each mindfulness exercise was administered to the students for 15 min sessions (10 min of mindfulness plus 5 min of reflection), two to three times weekly. Each individual mindfulness exercise was administered three to four times throughout the study. All classroom management techniques were used during the exercises. Before each exercise, students were instructed to remain in their desk (unless otherwise instructed during mindful movement exercises) with a quiet voice. The following exercises were used throughout the study.

Quiet Game Students were asked to close their eyes or put their head on their desks. The researcher then walked around the room providing praise to the students for remaining quiet. Afterward, students were asked how much time they thought had elapsed and what they noticed before the end of the session (5 min).

Deep Breathing Students were instructed to focus on their breathing while seated in their desk. The researcher first modeled and provided metaphorical instructions for breathing in through the nose (e.g., "like you are smelling a flower"), holding it for a count of three, then letting the air out through the mouth (e.g., "like you're blowing out a candle"). The students were then asked to imitate this for the remainder of the time (10 min) as prompted by the researcher. Afterward, students were asked what they noticed before the end of the session (5 min).

Structured Breathing This exercise was similar to the deep breathing exercise, except that researchers used a metronome to set the rate of student breathing. Students were instructed to breathe in on the sound of the metronome and out on the next sound of the metronome. The rate of the metronome varied throughout the time, and students had to attend to these changes and match their rate of breathing. Afterward, students were asked what they noticed during the final 5 min of the session.

Present Moment Awareness Students were asked to remain in their desks with a quiet voice and with their eyes closed or their heads on their desk. The researcher walked around the room and prompted students to attend to each of their senses, asking what they could feel with their hands and their body, what they could hear, smell, or taste (visual awareness was not included as students had their eyes closed or their heads down). After 10 min, students were asked what they noticed during the remainder of the session (5 min).

Mindful Eating Students were given an edible item (e.g., Hershey's kiss, Starburst) and were instructed at a slow pace through the various steps of eating the item (e.g., feeling the texture of the wrapper, hearing the sound of unwrapping the item, smelling the unwrapped item, etc.). Throughout the process, students were asked to discuss the sensations they noticed in their body (e.g., salivation, stomach pains, urges to eat the item, etc.). Students were then instructed to eat the item slowly making sure to focus on the item's texture and taste. Following 10 min, the students shared their experiences with the class for the remaining time (5 min).

Mindful Movement Students were asked to stand just behind their desk while researchers modeled different stretches and body positions. Students were instructed to imitate the researcher's movements while focusing on their breathing. After 10 min, students were asked what they noticed during the remainder of the session (5 min).

Self-Monitoring

Two students (Stephen and William) were exposed to a self-monitoring system following the mindfulness intervention,

due to continued behavioral concerns as reported by the classroom teacher outside of observational sessions. During self-monitoring, each student was asked to give himself a plus or minus during each activity throughout the day based on how well he thought he followed classroom rules (i.e., stay in seat, raise hand, eyes on work). If the student reached his goal by the end of the day, he could choose from preferred items to be used the next day (e.g., being the teacher's helper, getting a pass to remove one minus, a break card to be used during academic activities). A feedback column was also incorporated on the self-monitoring sheet for the student to identify what behavior to improve upon if he gave himself a negative rating during an interval. Self-monitoring was only implemented by the Classroom teacher.
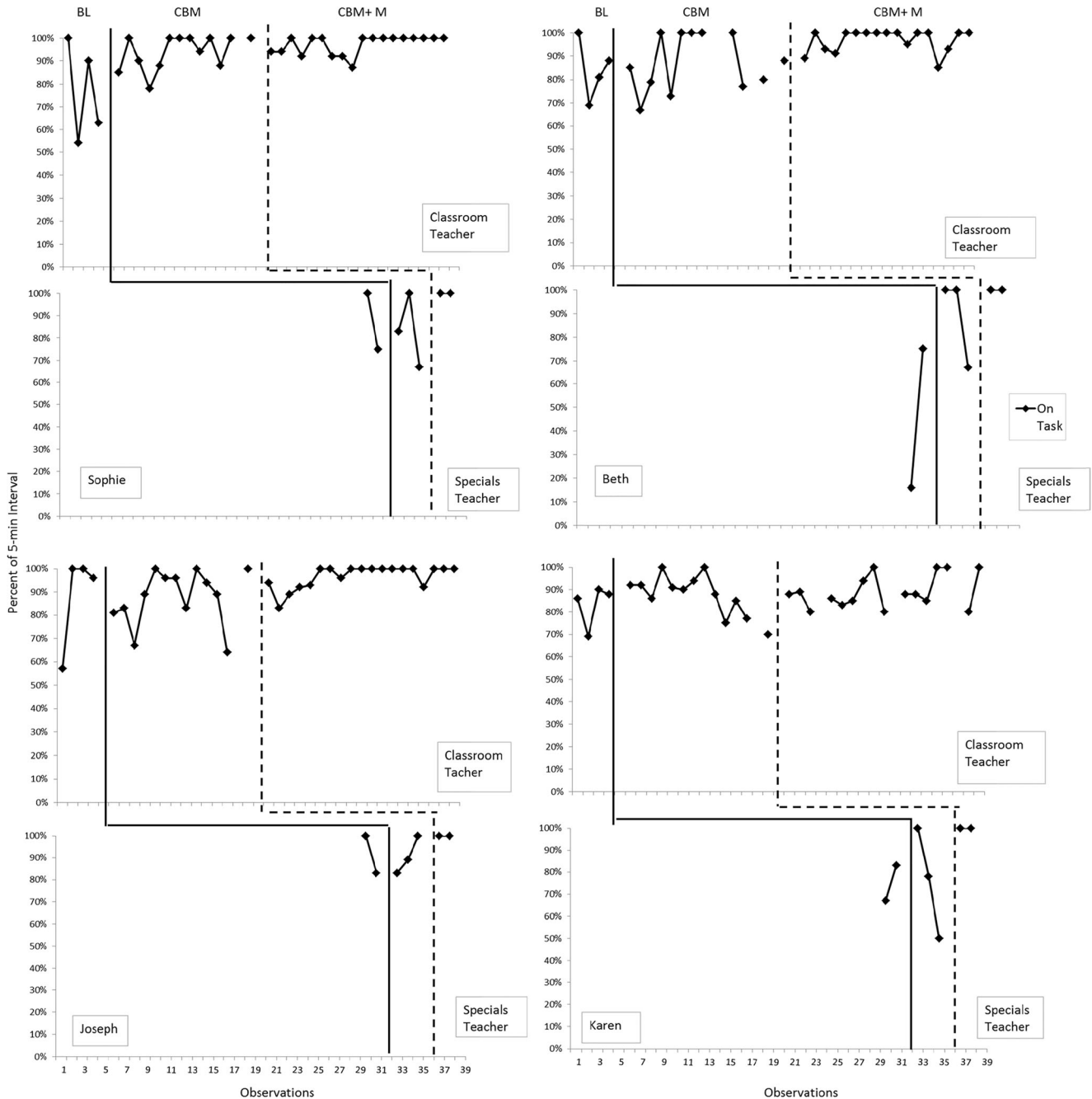

Fig. 1. Percentage of intervals students engaged in on-task behaviors across baseline (*BL*), classroom behavior management treatment package (*CBM*), and behavior management treatment package plus mindfulness (*CBM + M*) across students
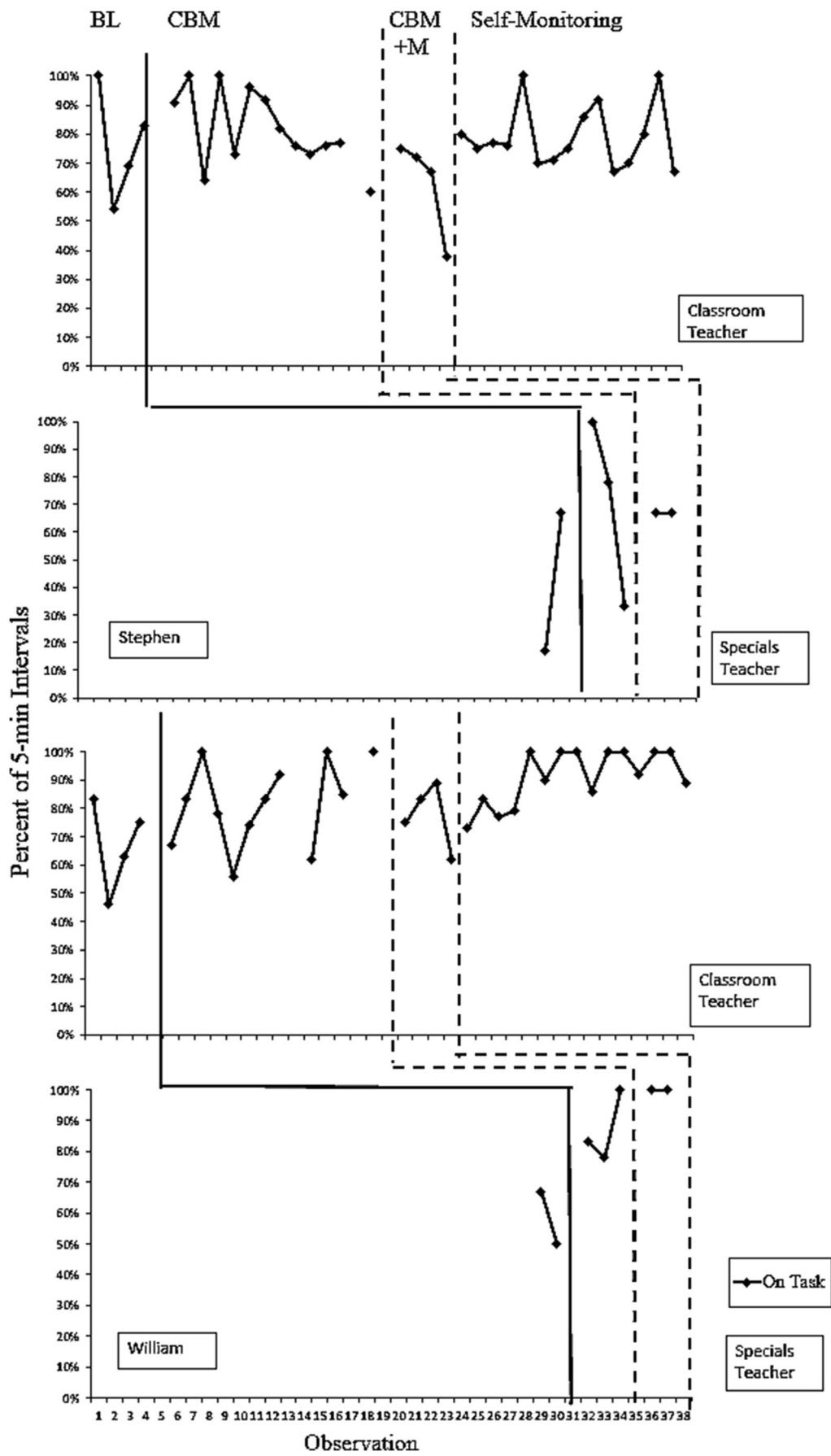
◀ **Fig. 2.** Percentage of intervals' students engaged in on-task behaviors across baseline (*BL*), classroom behavior management treatment package (*CBM*), behavior management treatment package plus mindfulness (*CBM + M*), and self-monitoring (*SM*) across students

Results

Figures 1 and 2 represent student single-subject analyses on engagement in on-task behavior across teachers (e.g., leg 1 = Classroom teacher; leg 2 = Specials teacher). During baseline, all six student's engaged in high yet variable rates of on-task behaviors across teachers (Sophie *M* = 79%; Joseph *M* = 81%; Beth *M* = 82.5%; Karen *M* = 89%; Stephen *M* = 74%; and William *M* = 67%). Following teacher training, five of the students increased engagement in on-task behaviors (Sophie *M* = 93%; Joseph *M* = 89%; Beth *M* = 87%; and Stephen *M* = 81%; and William *M* = 81%), and one student maintained similar engagement (Karen *M* = 88%). Following the inclusion of mindfulness exercises, four of the six students increased engagement in on-task behaviors when compared to previous phases (Sophie *M* = 97%; Joseph *M* = 96%; Beth *M* = 90%; Karen *M* = 97%). Stephen and William (see Fig. 2), however, demonstrated decreased rates of on-task behaviors immediately following the inclusion of mindfulness (Stephen *M* = 63%, William *M* = 77%). After four observation sessions of mindfulness, Stephen and William were exposed to a self-monitoring phase. During the self-monitoring phase, Stephen increased engagement in on-task behaviors initially, although responding decreased towards the end of the study (*M* = 78%, range = 67–100%). William, however, increased on-task behaviors following the inclusion of self-monitoring (*M* = 91%, range = 73–100%).

Figure 3 represents standard mean difference (SMD) scores (*d*) for each participant across treatment phases (e.g., classroom behavior management, mindfulness plus classroom behavior management, and self-monitoring for Stephen and William only). Effect sizes (*d*) for student

engagement in on-task behaviors following teacher training on implementing classroom behavior management strategies averaged 0.58 across students: Sophie (0.63), Joseph (0.55), Beth (−0.05), Karen (0.55), Stephen (0.5), and William (1.35). Effect sizes (*d*) following mindfulness, however, averaged 0.78 across students: Sophie (0.95), Joseph (0.86), Beth (0.41), Karen (1.0), Stephen (−0.04), and William (1.5). Finally, effect sizes (*d*) following self-monitoring were mixed across students: Stephen (−0.04) and William (1.93).

Discussion

The purpose of the current case study was to assess the effects of a mindfulness intervention paired with behavior management techniques on on-task behaviors emitted by 3rd grade students. Teachers were first trained to use a signal, a timer for transitions, differential reinforcement, and a reinforcer incentive system. Next, students were exposed to mindfulness exercises while the behavior management techniques continued. Following teacher implementation of classroom behavior management strategies, four of six students increased engagement in on-task behaviors. However, following the addition of mindfulness exercises, five of six students increased engagement in on-task behaviors. Two students (Stephen and William) were subsequently exposed to self-monitoring, and increased on-task behaviors were observed for William only. These results replicate and extend previous research using mindfulness (Wilson & Dixon, 2010), as well as other research on similar behavioral interventions (Hine, Ardoin, & Foster, 2015; Lee et al., 1999) and self-monitoring protocols (e.g., Ninness, Fuerst, Rutherford, & Glenn, 1991). These results also highlight the clinical utility of the effects of mindfulness exercises paired with behavioral interventions, and suggest an additive effect between these interventions.

Fig. 3. Standard mean difference scores across classroom behavior management treatment package (*CBM*), behavior management treatment package plus mindfulness (*CBM + M*), and self-monitoring (*SM*) interventions across students. The *dashed horizontal line* represents large effect sizes (0.8)
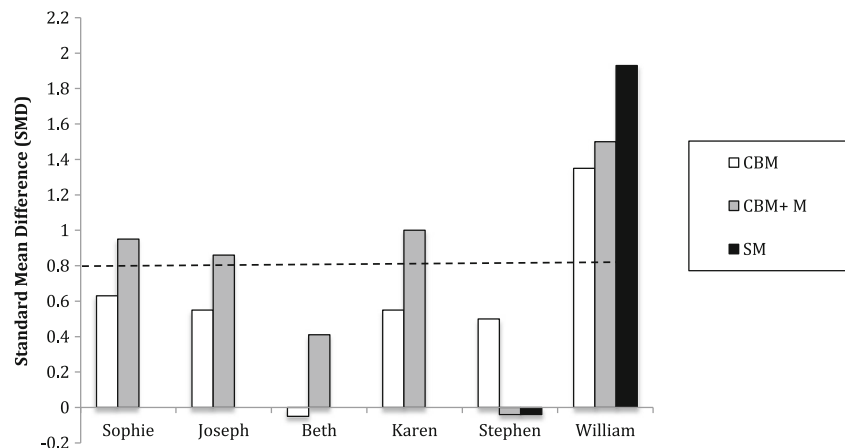
The mindfulness activities used in the current study effectively increased students' on-task behavior (as further supported with the increased effect sizes), a result which is consistent with previous research (e.g., Wilson & Dixon, 2010; Felver et al., 2013, Felver et al., 2014). For instance, Wilson and Dixon (2010) found mindfulness sufficient to increase student on-task behaviors, but attending behaviors decreased when mindfulness was removed. The change in on-task behavior for four of six students in the current study mirrored these results; however, two students' engagement in on-task behavior dropped significantly with the extended usage of a mindfulness-based approach. It is important to note that Stephen's engagement in on-task behaviors decreased over time, and were highest following teacher training on implementing classroom behavior management strategies. As such, it is important to determine why mindfulness may be effective for some individuals and not others (e.g., salience of exercises, dosage, maintaining behavioral function, etc.). One potential explanation for this decrease in on-task behaviors, could have been the reduction in social attention provided by the teacher or other peers during mindfulness exercises. In this way, the removal of social attention may have had evocative effects on off-task behaviors, which when emitted during observations, resulted in social attention from both teachers and/or peers. However, more information and research is needed to determine the extent to which mindfulness is either ineffective or effective across environmental conditions (i.e., attention deprivation vs. satiation).

These findings further support mindfulness based interventions for children in school settings. Previous research has identified mindfulness as an effective intervention for a range of behaviors, including suppression of challenging anti-social behaviors (e.g., Hofmann et al., 2010; Singh et al., 2003; Singh et al., 2007) increases in awareness, and attention to external and internal environmental stimuli (e.g., Wilson & Dixon, 2010). The current study determined the extent to which mindfulness combined with other classroom behavior management strategies would impact student engagement in on-task behavior.

While preliminary, the current results are promising and suggest that mindfulness can help strengthen traditional behavior management techniques, and may not need to be a standalone treatment modality. However, the study is not without limitations. The external validity of the procedures was limited by the use of outside researchers and observers to record data, train teachers, and implement the mindfulness exercises. Similarly, the data collected was based primarily on student behaviors, rather than teacher implementation accuracy of the behavioral treatment package per se, which limits the extent to which the effects of the behavioral treatment package can be verified. Another limitation is the low percentage of total sessions assessing for interobserver agreement (e.g., 6% of total sessions). While the percentage of sessions is low, the high agreement percentage found for student behavior (91%

for on-task) suggests that the researchers accurately depicted what was occurring during observational sessions.

Future research should consider ways to assist teachers with collecting data during class time, to further assist with external validity. While the current case study took the first step towards understanding the effects of mindfulness paired with behavior analytic techniques, teachers in general education classrooms may have difficulty observing and recording the behavior of multiple students at a time. Additionally, future research should determine the effectiveness of a teacher-administered mindfulness intervention in addition to teacher-administered behavioral interventions.

Further, it is unclear why the mindfulness intervention was less effective for two of the students, particularly Stephen. It may be the case that students with whom mindfulness interventions were less effective (e.g., Stephen) might need a higher dosage than implemented. Future research should evaluate the dosage or frequency with which mindfulness interventions are most effective. Researchers should consider conducting component analyses and evaluations of treatment dosages, to determine the clinical utility of a combined behavioral treatment package. Component analyses may assist with determining the extent to which mindfulness interventions have an additive treatment effect (as demonstrated in the current study) and if they are sufficient to alter behavior overt time. Finally, as represented in Wilson and Dixon (2010), mindfulness interventions may require consistent implementation, as treatment effects are minimized or do not maintain when the intervention is removed. As such, an evaluation of the maintenance of skills acquired during mindfulness interventions should be conducted on both mindfulness interventions used primarily or as a secondary additive intervention.

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