Original Research

Hammill Institute on Disabilities

Behavioral Disorders
1–11

DOI: 10.1177/01987429211010672
journals.sagepub.com/home/bhd
SAGE

A Preliminary Study of BEST in CLASS–Elementary on Teacher Self-Efficacy, Burnout, and Attributions

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Abstract

Student problem behaviors in early elementary school have been associated with increased teacher burnout, negative emotions, and stress, along with negative student outcomes, including increased risk of emotional and behavioral disorders (EBDs). This study examined the impact of BEST in CLASS–Elementary (BEST in CLASS-E), a teacher-delivered Tier 2 intervention, on teacher self-efficacy, burnout, and attributions for student behavior. Participants in the study were 45 kindergarten to Grade 3 students, identified as at risk of EBD, and their 26 teachers from three elementary schools located in an urban school district. Although changes in teacher self-efficacy and burnout were nonsignificant, results suggest that teachers in the BEST in CLASS-E condition reported less emotional exhaustion than teachers in the control condition and that BEST in CLASS-E had a slight but nonsignificant effect ($p = .06$) on teachers' causal attributions of problem behavior. This study highlights the promise of BEST in CLASS-E as a Tier-2 intervention delivered by teachers in impacting elementary teacher outcomes. Implications and limitations of the study are discussed.

Keywords

teacher self-efficacy, teacher burnout, teacher attributions

Long-term academic, social, and behavioral outcomes are often set for students in the early years of school. Yet it is estimated that up to 30% of students enter school with behavioral challenges (Forness et al., 2012; Howes et al., 2008; Myers & Pianta, 2008; Ringeisen et al., 2017) that can shape their educational experiences (Spilt et al., 2012) and increase their long-term risk for behavioral difficulties (Conroy et al., 2008). This risk tends to increase over time (Broidy, 2003) as children who begin school with problem behavior often develop negative interaction patterns, with teachers struggling to manage students' classroom behavior (O'Connor et al., 2011). Although problem behaviors have been connected to teacher burnout, negative emotions, and stress (Hart & DiPerna, 2017), few teacher preparation programs adequately prepare educators to address problem behavior in the classroom (O'Conner et al., 2017; Sutherland et al., 2008). In place of evidence-based practices that can be used to increase student learning opportunities and de-escalate problem behavior, teachers often rely on negative feedback and reprimands in the classroom (Downs et al., 2019; Gable et al., 2009; McClowry et al., 2013), which can lead to continued cycles of negative interactions between teachers and students, and seriously impact students' future academic, social, and behavioral outcomes (Brock et al., 2008). Thus, to improve the long-term outcomes for these students, there is a critical need for preventive and targeted interventions implemented by teachers in classroom settings and aimed at addressing both chronic problem behavior and the cycle of negative teacher–student interaction patterns.

Elementary Professional Development Research

Given the limitations of preservice teacher preparation programs in adequately ensuring that teachers are skilled at dealing with behavior problems, researchers and school leaders have examined alternative strategies for preparing teachers to manage problem behaviors in the classroom (Hart & DiPerna, 2017). Along with the development of classroom-based interventions, researchers have started to recognize the importance of professional development in

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improving teacher implementation of evidence-based practices (Conroy, Sutherland et al., 2019). Specifically, research suggests improved teacher and student outcomes when professional development includes an overview and demonstration of the benefits of mastering a given practice, as well as opportunities for teacher reflection and performance feedback (Dunst et al., 2015; Snyder et al., 2015). Support from coaches or mentors that includes feedback and follow-up has also been linked to positive outcomes for teachers and students (Conroy, Sutherland et al., 2019). For example, high-quality professional development has also been linked to increases in teacher self-efficacy, lower levels of burnout, changes in teacher attributions for student behavior, and increased feelings of personal accomplishment (Bradshaw et al., 2009; Domitrovich et al., 2009, 2016; Han & Weiss, 2005; Johansen et al., 2011; Pas et al., 2012).

These findings are important as teacher self-efficacy, burnout, and teachers' attributions for problem behavior are all associated with student outcomes (Andreou & Rapti, 2010; Dobbs & Arnold, 2009; Guo et al., 2012; Hoglund et al., 2015). For example, research suggests that teachers with higher feelings of self-efficacy offer students more support through a more positive classroom environment and, over time, have students with stronger literacy skills (Guo et al., 2012). Similarly, teacher burnout plays a critical role in students' social and academic skills. Hoglund and colleagues (2015) found that teacher burnout predicted decreases in both student–teacher relationships and literacy skills in high-need elementary school classrooms. In addition, research suggests that teacher attributions for problem student behavior, specifically the perception that the cause of misbehavior is internal to the student, may be linked to ineffective behavior management strategies and, in turn, poor student outcomes (Andreou & Rapti, 2010; Clunies-Ross et al., 2008; Nelson et al., 2002). However, a shift in thinking toward attributing behavior to school-based factors may help teachers consider their own role in problem student behavior, creating room for intervention and, eventually, improve student outcomes (Poulou & Norwich, 2000).

Overview of BEST in CLASS–Elementary (BEST in CLASS-E)

Adapted from the preschool BEST in CLASS program (see Conroy et al., 2018), BEST in CLASS-E is an intervention that aims to increase positive student–teacher interactions and learning opportunities for students with or at risk of emotional and behavioral disorders (EBD) in kindergarten to third grade. BEST in CLASS-E is rooted in Sameroff's (2009) transactional theory, which suggests that development results from dynamic interactions and experiences. When applied to interactions between students and teachers, the theory posits that student behavior (both positive and negative) can influence the behavior of teachers, with teacher behavior in turn further influencing student behavior. These transactions between teacher and student influence, and are influenced by, the broader ecology within the classroom (Bronfenbrenner, 1979). An iterative development process with teachers and families of young students with and at risk for EBD, including pilot testing in urban elementary schools, indicated both promise for the intervention as well as contextual fit in the schools included in this study (see Sutherland et al., 2019, for a description of this intervention development process that was conducted in the same community, but not the same classrooms, in which this study took place).

BEST in CLASS-E aims to improve outcomes for both teachers and students through three components: (a) a 1-day workshop on the BEST in CLASS-E practice-based coaching model and practices; (b) a teacher manual, which acts as a resource through the practice-based coaching process, providing additional information about the practices; and (c) 14 weeks of practice-based coaching adapted from Snyder et al. (2015). The overarching goal of BEST in CLASS-E is to support teachers' effective delivery of five evidence-based instructional practices that can increase learning opportunities and positive interactions with students demonstrating elevated rates of problem behavior: supportive relationships, rules, precorrection, opportunities to respond, and praise. Teachers are also coached on how to develop effective home–school partnerships, which can lead to increased communication and engagement of families in their student's education (see Conroy, McKnight et al., 2019).

BEST in CLASS-E supports teachers' use of targeted practices in regularly occurring interactions within the classroom with focal students who engage in sustained rates of problem behaviors throughout the day. Furthermore, because teachers are likely using the targeted practices in their classrooms already, BEST in CLASS-E is considered a "value-added" intervention. This is because BEST in CLASS-E aims to increase the *quantity* and *quality* of the delivery of the targeted practices with focal students. For example, most teachers provide praise to all students at various points throughout the school day. However, BEST in CLASS-E uses practice-based coaching to help teachers identify ways to use praise with more competence (e.g., behavior specific praise) and frequency with the specified focal students, which increases the intensity and dosage of the intervention. Increased use of the BEST in CLASS-E practices can help increase student engagement in classroom instruction and, in turn, engage in fewer problem behaviors, increasing the positive teacher–student interactions and reducing coercive interactions.

In a recent study (Sutherland et al., 2020) including 45 students with and at risk for EBD and their 26 teachers, students in teachers' classrooms randomly assigned to receive BEST in

CLASS-E training and practice-based coaching had reductions in problem behavior ($d = -.32$) and improvements in closeness with their teachers ($d = .55$). These findings replicated previous research on child outcomes in early childhood settings (Conroy, Sutherland et al., 2019; Sutherland et al., 2018a). While Conroy, Sutherland and colleagues (2019) found effect sizes (ESs) ranging from .50 to .78 on teacher self-efficacy measures for early childhood teachers who received the BEST in CLASS training and practice-based coaching, it remains to be seen what the impact of the BEST in CLASS-E professional development model has on teacher outcomes in elementary schools.

Current Study

Research in early childhood setting suggests that BEST in CLASS can demonstrate positive outcomes for both teachers (Conroy, Sutherland et al., 2019) and children (Conroy, Sutherland et al., 2019; Sutherland et al., 2018) as well as positive outcomes for students in elementary settings (Sutherland et al., 2020). This study aims to examine the efficacy of BEST in CLASS-E in shifting outcomes for teachers, with the goal of investigating the intervention's impact on teacher practices and perceptions. The following research questions were addressed:

Research Question 1 (RQ1): What is the effect of BEST in CLASS-E on teacher self-efficacy?
Research Question 2 (RQ2): What is the effect of BEST in CLASS-E on teacher burnout?
Research Question 3 (RQ3): What is the effect of BEST in CLASS-E on teacher attributions for problem student behavior?

Method

Setting and Participants

Three mid-Atlantic urban elementary schools participated in this intervention. The school populations were predominantly African American (94%, 93%, and 98%, respectively), and the schools were located in a low-income community (82%, 96%, and 96% of students in the participating schools qualified for free and reduced-price lunch, respectively).

Teachers. Cumulatively, 26 teachers participated in this study, with 14 randomly assigned to the BEST in CLASS-E intervention/treatment condition and 12 in the business-as-usual (BAU) condition. These teachers met the following inclusion criteria: (a) taught kindergarten through Grade 3, (b) taught at least one student identified with or at risk for EBD, and (c) consented to participate in the study. One-way analysis of variance (ANOVA) tests revealed that no significant differences were seen between teachers in BEST in CLASS-E and BAU conditions with respect to demographics (see Table 1).

Students. A total of 45 students participated in the study, with 25 students in the BEST in CLASS-E intervention condition and 20 in the BAU condition. Students who met the following criteria were included in the study: (a) enrolled in a participating teacher's classroom, (b) consenting parent/guardian for participation, and (c) exhibited externalizing behaviors that influenced class participation (e.g., disruptions, aggressive behaviors, and off-task behaviors) as indicated by the Early Screening Project (ESP; Walker et al., 1995) or Systematic Screening for Behavior Disorders (SSBD; Walker et al., 2014). Following the procedures for the ESP and SSBD, Stage 1 of determining eligibility included teacher nominations of up to five students, in their classroom, who exhibited chronic externalizing behaviors. Parental/guardian consent was then obtained from nominated students and a systematic screening for problem behaviors was conducted using the ESP/SSBD for Stage 2. Finally, one or two students with the highest scores from those nominated were included from each classroom to participate in the study, contingent upon returned consents from caregivers. Included students who screened into the study met the criteria for being "at-risk" as defined by the normed cutoff criteria on the ESP/SSBD (see Walker et al., 2014). An independent-samples t test and one-way ANOVA tests revealed no significant differences between students in BEST in CLASS-E condition and those in the BAU condition based on screening scores or demographics (see Table 1).

Coaches. Teachers in the BEST in CLASS-E condition were coached by four coaches (75.0% female; 75.0% Caucasian, 25.0% African American) ranging in age from 30 to 36 years. All four coaches had at least 1 year of teaching experience (75.0% certified), with 50.0% holding a master's degree or higher and 75.0% enrolled in a graduate program at the time of coaching. In addition, 50.0% of the coaches reported at least 1 year of practice-based coaching experience. Following the intervention, teachers in the BEST in CLASS-E condition reported feelings of high alliance on both subscales of the 7-point Coaching Alliance measure: Client Focus ($M = 6.96$, $SD = 0.014$) and Rapport ($M = 6.29$, $SD = 0.06$).

Data Collection and Management

Data were collected on teachers' implementation of instructional practices, their self-efficacy, burnout, and attributions for student externalizing behaviors, for intervention and control teachers at pretest (i.e., prior to the implementation of the intervention) and at posttest (i.e., at the end of the

Table 1. Participant Demographics by Study Group.

Participants			BAU	BEST in CLASS	Total
Teachers	*N*		12	14	26
	Age range	18–25 years	1	3	4
		26–35 years	5	6	11
		36–45 years	3	2	5
		46–55 years	3	2	5
		Above 55 years	0	1	1
	Gender	Male	0	0	0
		Female	12	14	26
	Hispanic/Latino		0	1	1
	Non-Hispanic/Latino		12	13	25
		African American/Black	7	4	11
		Asian/Pacific Islander	0	0	0
		Caucasian/White	5	8	13
		Native American	0	0	0
		Other	0	1	1
	Years teaching	*M* (*SD*)	6.33 (6.95)	6.07 (7.85)	6.19 (7.29)
		Associate's degree	0	0	0
		Bachelor's degree	8	6	14
		Master's degree	4	8	12
		Education specialist	0	0	0
		Doctoral degree	0	0	0
	Grade	Kindergarten	2	4	6
		First	3	4	7
		Second	3	2	5
		Third	2	2	4
		Special education	2	2	4
Students	*N*		20	25	45
	Age	Mean	7.48 (1.35)	7.35 (1.31)	7.39 (1.31)
	Gender	Male	17	20	37
		Female	3	5	8
	Hispanic/Latino		0	0	0
	Non-Hispanic/Latino		0	0	0
		African American/Black	16	25	41
		Asian/Pacific Islander	0	0	0
		Caucasian/White	1	0	1
		Native American	0	0	0
		Other	1	0	1
	Grade	Kindergarten	4	7	11
		First	5	7	12
		Second	5	6	11
		Third	4	5	9
		Special education	2	0	2

Note. BAU = business as usual.

intervention). Researchers collected pretest data during the first few months of the academic year (i.e., September and October) and posttest data after the completion of the intervention (i.e., April and May). In addition, fidelity data were collected at different time points throughout the study on the dosage and implementation of BEST in CLASS practice-based coaching and teachers' use of the intervention practices. Data were entered and stored into a secure, web-based application, REDCap (Harris et al., 2009). Data were entered twice into the main and shadow databases by different data entry staff and checked for inconsistencies to ensure accuracy. At the conclusion of the study, all the data were exported from REDCap for data analysis.

Measures

ESP and SSBD. The ESP and SSBD (Walker et al., 2014) are three-stage screening systems designed to proactively

identify students at risk of negative developmental outcomes associated with their internalizing and externalizing behavior patterns. The ESP was adapted from the SSBD for use with students from ages 3 to 5 years, while the SSBD is targeted for use in Grades 1 to 9. The tools combine teacher ratings of the frequency and intensity of student adjustment problems in school with trained observer ratings of student's adaptive and maladaptive behaviors. The SSBD suggests that the first two stages be completed and allow the third stage, which is an observation completed by trained observers, to be optional; we used the first two stages to identify focal students. In Stage 1, teachers ranked the top five students who engage in externalizing behavior based on a list of example and nonexample behaviors. In Stage 2, students with caregiver consent were rated by their teacher on the critical events index (CEI) and combined frequency index (CFI). Both stages exhibit strong psychometric properties. Stage 1 shows acceptable test–retest stability estimates (e.g., 69% of students, ranked among the top three externalizers at Time 1, were also ranked in the top three at ranking Time 2; Spearman's rank order coefficients between Stage 1 rankings at the two time points reveal a mean *r* coefficient of .76 for externalizers; Walker et al., 2014). Stage 2 also demonstrates internal consistency, with Adaptive Behavior Scale alphas of .85 and .88 across the two ratings 1 month apart. For the Maladaptive Behavior Scale, these coefficients were .82 and .87 (Walker et al., 2014).

Teachers' Sense of Self-Efficacy Scale (TSES). Teacher self-efficacy was measured with the TSES (Tschannen-Moran & Hoy, 2001). This teacher report measure includes three subscales that measure teacher efficacy as related to Student Engagement, Instructional Strategies, and Classroom Management. Teachers select from nine response scale options that range from *nothing* to *a great deal*. In a previously published psychometric study (Tschannen-Moran & Hoy, 2001), the measure's subscales demonstrated high internal consistency, with alpha levels ranging from .87 to .94. For this sample, internal consistency was acceptable with Cronbach's $\alpha = .86$, .89, and .90 for pretest student engagement, instructional strategies, and classroom management, respectively, and .89, .88, and .93 for posttest student engagement, instructional strategies, and classroom management, respectively.

Maslach Burnout Inventory (MBI). Teacher burnout was measured with the MBI (Maslach & Jackson, 1986) that consists of three subscales: Depersonalization, Emotional Exhaustion, and Personal Accomplishment, which demonstrated high internal consistency ranging from .71 to .90. Teachers respond to five statements on a 7-point scale ranging from 0 (*never happens to me*) to 6 (*happens to me every day*). Example items include, "I feel I treat some people as impersonal objects" and "I worry that this job is hardening me emotionally." In this study, alphas were .86 and .76 for pretest Emotional Exhaustion and Personal Accomplishment, respectively, and .85 and .87 for posttest Emotional Exhaustion and Personal Accomplishment, respectively. It is important to note that the Depersonalization subscale did not demonstrate good internal reliability (αs = .72 at pretest and .57 at posttest), perhaps due to a small number of teacher reports and a small amount of variability in teacher responses. Therefore, the Depersonalization subscale was not analyzed in this study.

Teacher Attribution Measure for Early Elementary (TAM-EE). Teacher attributions for problem student behavior were measured with the TAM-EE (Nemer, 2019), which was adapted from the Preschool Teaching Attributions measure (PTA; Carter et al., 2014). Given evidence for reliability and validity of the PTA, the TAM-EE retains the overall structure of the preschool measure with student behavior prompts adapted for early elementary classrooms. The measure includes seven factors and two subscales: Causal (globality, stability, and internal/external locus; Cronbach's $\alpha = .97$) and Responsibility (purposefulness, motivation, blame, and negative intent; Cronbach's $\alpha = .84$), which align with the PTA (Carter et al., 2014) subscales and were adapted by Nemer (2019). Higher scores on the Causal subscale indicate a belief that problem student behavior is due to something internal to the student and likely to be stable across both time and contexts. Relatedly, higher scores on the Responsibility subscale indicate the belief that problem behavior is purposeful and selfishly motivated, and that students demonstrate challenging behavior with negative intentions and should be blamed for their actions. Although teachers in this study were asked to complete the measure for each focal student in their classroom, factors and subscales were computed as an average across teachers' reports on each focal student.

Treatment integrity measure. The Treatment Integrity Instrument for Elementary School Classrooms uses direct observation (7-point Likert-type scale) to measure teachers' extensiveness of practice delivery (i.e., adherence; five items), quality of delivery (i.e., competence; five items), and student responsiveness (one item). While the association between relational factors and child outcomes has not typically been a focus of integrity measurement in programs targeting EBDs, lessons learned from other areas of research (e.g., youth therapy) may be useful as the field advances, particularly for interventions that have a social, emotional, and/or behavioral emphasis. To illustrate, therapist–client alliance and client responsiveness are linked to symptom reduction in youth psychotherapy (Karver et al., 2006; McLeod, 2011). Adherence to an EBP protocol is not sufficient if a child does not participate in the program.

Adherence and student responsiveness item anchors range from 1 (*not at all*) to 7 (*very extensive*) and Competence item anchors range from 1 (*very poor*) to 7 (*excellent*). Trained observers used the TIES to collect data during 87 observations in both conditions at pretest and posttest, with secondary observers conducting reliability checks during 39.1% of the observations ($n = 34$). The mean intraclass correlation coefficient (ICC) for the adherence scale was .82 ($SD = 0.10$; range = .68–.92) and the mean ICC for the competence scale was .61 ($SD = 0.11$; range = .52–.77). The student responsiveness item ICC was .68.

Data Analyses

To test whether BEST in CLASS-E influenced change in teacher efficacy, burnout, and attributions for problem behavior, seven regression models were conducted in which condition (scored as 0 = *BAU classrooms*, and 1 = *BEST in CLASS-E classrooms*) was regressed on each of the posttest subscales for (a) teacher efficacy, (b) burnout, and (c) attributions. Each of these models controlled for pretest teacher scores on the respective outcome variable (i.e., pretest scores were regressed on posttest scores). Therefore, direct effects are interpreted as the extent to which BEST in CLASS-E predicted change in teacher efficacy, burnout, and attributions for student behavior at posttest. Analyses were conducted using Mplus Version 8.0 (Muthén & Muthén, 1998–2017).

Design and Experimental Procedures

The study was a randomized trial, with students nested in teachers' classrooms and teachers randomly assigned to either BEST in CLASS-E or a business-as-usual (BAU) comparison condition. Random assignment occurred at the school and, when possible, grade level (i.e., kindergarten, first grade, second grade, and third grade), so that schools with multiple consented teachers per grade level had one assigned to each condition. To minimize contamination across conditions, teachers were informed about their roles in the study along with the importance of keeping study details confidential.

Treatment and comparison conditions

BEST in CLASS-E. The treatment condition, BEST in CLASS-E, is considered a Tier-2 intervention, given that it targets students specifically identified by teachers as being at risk of EBDs. Teachers in the condition receive training and practice-based coaching to increase the quality and quantity of specific instructional practices with the identified focal students throughout the school day.

The BEST in CLASS-E Teacher Manual provides teachers with an overview of the intervention's six modules and its implementation process. The first BEST in CLASS-E module, known as home–school partnership, supports the teacher in partnering with families of the focal students and is reviewed with teachers weekly. The remaining modules target instructional practices (i.e., supportive relationships, rules, precorrection, opportunities to respond, and praise) with a specific focus on helping teachers link practices together during the final weeks of the intervention. Each module includes a definition of the practice, supporting research, high-quality examples, and steps for successful implementation with the focal students in the classroom. The BEST in CLASS-E manual is introduced at the teacher workshop, which is led by university faculty and coaches; however, it is referenced weekly throughout the 14 weeks of practice-based coaching. Teachers also receive more detailed information about each BEST in CLASS-E practice during the 1-day workshop, which includes modeling, video exemplars, and hands-on activities created to encourage discussion between teachers and coaches about specific problem behaviors in their classroom.

The week after the teacher workshop, coaches meet with teachers to begin the BEST in CLASS-E practice-based coaching process, which lasts for 14 weeks. Through a cyclical process, teachers and coaches collaborate to set a new goal each week for the identified BEST in CLASS-E practice. The coaches and teachers focus their goals on implementing each practice in the classroom for 2 weeks through the development of a weekly coaching plan. The coaching plan includes specific ways the teacher will implement the current practice with focal students, which is observed by the coach the following week. The observation lasts approximately 15 min per focal student and is video recorded by the coach who also takes anecdotal notes and collects observational data (e.g., use of BEST in CLASS-E practices, teacher–student interactions, student engagement, and problem behaviors). This cycle of practice-based coaching is intended to add to what teachers have learned from both the manual and workshop to improve their use of the BEST in CLASS-E practices with the screened focal students in their classroom (see Sutherland et al., 2015, and Sutherland et al., 2018a, for a more detailed description of the practice-based coaching component of BEST in CLASS-E).

Business as usual. Focal students in the comparison group received BAU, which included typical daily instructional activities in elementary classrooms as their teachers were not receiving the BEST in CLASS-E intervention. For most classrooms, this included a morning meeting, both small- and large-group teacher-led activities (e.g., early literacy, mathematics), and some one-on-one time. Although varied across schools, teachers in both conditions were provided the same professional development opportunities (other than the BEST in CLASS-E teachers receiving training

Table 2. Pretest Scores and Treatment Condition as Predictors of Posttest Outcomes.

	Pretest score		Condition	
Scale	*B*	*SE*	*B*	*SE*
Self-efficacy (TSES)				
Student engagement	.65**	.19	.23	.37
Instructional support	.49**	.15	–.34	.29
Classroom management	.89***	.16	.45	.39
Burnout (MBI)				
Emotional exhaustion	.34*	.17	–.84*	.36
Personal accomplishment	.45*	.21	–.14	.31
Attributions (TAM-EE)				
Causal	.48	.23	–.66	.34
Responsibility	.58	.22	–.54	.32

Note. Condition is scored as 0 = *business as usual*, 1 = *BEST in CLASS-E*. TSES = Teachers' Sense of Self-Efficacy Scale; MBI = Maslach Burnout Inventory; TAM-EE = Teacher Attribution Measure for Early Elementary.
*$p < .05$. **$p < .01$. ***$p < .001$.

and coaching), which included trainings on topics, such as trauma-informed approaches, instructional strategies, and general classroom management.

Treatment integrity. Adherence to practice delivery increased from pretest to posttest in the BEST in CLASS-E condition ($M = 2.88$, $SD = 1.62$ to $M = 3.18$, $SD = 1.66$, respectively) and decreased in the BAU condition ($M = 2.63$, $SD = 1.62$ to $M = 2.14$, $SD = 1.44$, respectively). Competence in practice delivery increased from pretest to posttest in the BEST in CLASS-E condition ($M = 3.79$, $SD = 1.06$ to $M = 4.78$, $SD = 0.31$, respectively) and decreased in the BAU condition ($M = 3.82$, $SD = 0.61$ to $M = 3.56$, $SD = 0.97$, respectively). Student responsiveness increased in the BEST in CLASS-E condition ($M = 4.81$ to $M = 5.08$) and decreased in the BAU condition ($M = 4.79$ to $M = 4.45$) from pretest to posttest.

Results

Missing data patterns revealed that one teacher was missing data on posttest study variables. The full information maximum likelihood (FIML) estimator was used to account for these missing data. This estimator retains the statistical power of the full analytic sample while minimizing bias in parameter estimates when data cannot be presumed to be missing completely at random (Enders, 2001).

In this study, we examined the efficacy of BEST in CLASS-E in changing teacher practices and perceptions. The first goal was to examine the extent to which BEST in CLASS-E influenced change in teacher self-efficacy, measured with the TSES, when compared with BAU. Results revealed that, compared with BAU, BEST in CLASS-E did not significantly influence teachers' self-efficacy in Student Engagement ($B = .23$, $p = .54$, $d = .12$), Instructional Support ($B = –.33$, $p = .25$, $d = –.22$), or Classroom Management ($B = .45$, $p = .25$, $d = .23$; Table 2).

Next, we examined the influence of BEST in CLASS-E on teacher burnout, measured with the MBI, when compared with BAU. BEST in CLASS-E did not significantly influence teacher Personal Accomplishment ($B = –.14$, $p = .65$, $d = –.09$) when compared with teachers in the BAU condition. However, when Emotional Exhaustion was examined, the difference in the scores for the teachers in the BEST in CLASS-E condition was statistically significant ($B = –.84$, $p = .02$, $d = –.46$; see Table 2).

Finally, we tested the extent to which BEST in CLASS-E changed teacher attributions for problem student behavior, measured with the TAM-EE. Controlling for pretest scores, BEST in CLASS-E had a slight but nonsignificant influence on teacher perceptions of student problem behavior on the Causal subscale ($B = –.66$, $p = .06$, $d = –.38$). However, BEST in CLASS-E did not significantly change teachers' perceptions of behavior on the overarching Responsibility ($B = –.54$, $p = .10$, $d = –.32$) subscale (see Table 2).

Discussion

The purpose of this study was to examine the effects of BEST in CLASS-E, a Tier-2 intervention that provides professional development, including practice-based coaching to increase teachers' delivery of evidence-based practices with higher quantity and quality to young students with and at risk for EBD, on a number of teacher outcomes associated with positive student outcomes. Previous research on BEST in CLASS-E (Sutherland et al., 2020) indicates its promise at reducing students' problem behavior and increasing teacher–student closeness, while research on the preschool version of BEST in CLASS has found positive effects for both child (Conroy et al., 2018; Sutherland et al.,

2018a) and teacher (Conroy, Sutherland et al., 2019) outcomes. In this study, teachers in the BEST in CLASS-E condition delivered practices with greater adherence and competence from pretest to posttest, whereas teachers in the BAU condition had decreases on both of these treatment integrity dimensions; meanwhile, student responsiveness increased in the BEST in CLASS-condition but decreased over time in the BAU condition. Although there were no significant effects for teacher self-efficacy in this study, teachers in the BEST in CLASS-E condition did report less emotional exhaustion than did teachers in the BAU condition; furthermore, a small but nonsignificant effect was found for teachers' causal attributions of problem behavior in the BEST in CLASS-E condition in comparison with BAU. In the following, we discuss these findings, limitations of this study, and implications for future research.

While there was a small increase in teachers' self-efficacy for classroom management ($d = .23$) in this study, this effect was not significant, which may be due in part to a lack of statistical power, given the small sample size. Previous research on the preschool version of BEST in CLASS found an effect size of $d = .78$, and it was expected that teachers' exposure to the training and practice-based coaching in BEST in CLASS would result in improved classroom management self-efficacy. That said, differences in training experience between preschool and elementary school teachers as well as contextual differences between preschool and elementary classrooms may result in different effects on teachers' self-efficacy. For example, one third of the teachers in the Conroy, Sutherland et al. (2019) study did not hold a bachelor's degree or necessarily specific preservice training in early childhood education, whereas all of the teachers in this study had a bachelor's degree and almost half held a master's degree. This is important, as previous research has shown that teacher education level is associated with teachers' ability to implement BEST in CLASS (see Sutherland et al., 2018b).

In addition, as reported in Sutherland et al. (2020), the classroom-level adversity scores in the classrooms in this study were high (means of 3.00 and 3.01 in BEST in CLASS-E and BAU classrooms, respectively, on a 4-point scale), indicating that students in these classrooms faced high levels of stress consistent with ecological challenges (i.e., poverty, toxic stress, and social and academic difficulties). Furthermore, there was a lack of Tier 1 practices in place that also may have impacted study results. It is plausible, given the high levels of classrooms adversity and limited Tier 1 supports in this sample, that exposure to teaching and coaching in BEST in CLASS-E was not as impactful for the teachers in this study. With the understanding that transactions between teachers and students influence and are influenced by the broader classroom ecology (Bronfenbrenner, 1979), the ongoing challenges teachers faced in attempting to meet the social, emotional, behavioral, and academic needs of all the students in their classrooms may have an impact on teacher outcomes. That is, in classrooms with high levels of challenging behavior, teachers' self-efficacy may not be as responsive to interventions such as BEST in CLASS-E and may require multitiered levels of support (e.g., universal, indicated) across a range of domains (e.g., classroom management, academic instruction, and self-care) to evidence increases in self-efficacy over time.

At the same time, BEST in CLASS-E did appear to have a positive impact on teachers' emotional exhaustion. This is important as teacher burnout is associated with a range of outcomes, including negative student academic and behavioral outcomes (e.g., Herman et al., 2017) and lower job satisfaction (e.g., Skaalvik & Skaalvik, 2011), which may lead to teachers leaving the field (e.g., Skaalvik & Skaalvik, 2011). In fact, Skaalvik and Skaalvik (2011) found that teachers' emotional exhaustion mediated the association between school context and leaving the field. In schools serving underserved communities, such as those in this study, interventions that support teachers' mental health may be particularly important.

To further illustrate, we know that teachers struggle to support the needs of students with and at risk for EBD (see Farmer et al., 2014), with teachers reporting minimal training in behavior management (Reinke et al., 2011). Challenges faced by teachers in underserved communities may be compounded when faced with high rates of emotional and behavioral crises consistent with childhood trauma (Christian-Brandt et al., 2020; Hydon et al., 2015). Thus, programs such as BEST in CLASS-E that support teachers' use of evidence-based practices with students with and at risk for EBD may be particularly important at helping reduce the emotional exhaustion faced by teachers in our most underserved communities.

Finally, a small ($d = –.38$) but nonsignificant decrease for causal attributions for problem behavior was found favoring the BEST in CLASS-E condition. While these findings should be interpreted with caution, given the small sample size and lack of significant effect, exploring ways to affect teachers' attributions for problem behavior may be important for moving the needle of students' with and at risk for EBD outcomes. To illustrate, teachers' understanding of the potential source of students' problem behaviors is associated with willingness to adopt practices that target positive student outcomes (e.g., Carter et al., 2014) and may be particularly important for students with and at risk for EBD (Nemer et al., 2019). In this study, teachers who received BEST in CLASS-E training and practice-based coaching were more likely to view problem behavior being a result of causal factors (e.g., external locus) that may be in their control (`., increasing learning opportunities; providing praise for desirable behavior) than were teachers in the BAU condition.

Limitation and Implications for Future Research

There were several limitations of this study that should be kept in mind while interpreting the results. First, this study was a small, randomized controlled trial and as such may be prone to Type II error due to a lack of statistical power. Relatedly, there was a range in the reliability scores (ICCs) for the treatment integrity measure, perhaps as a result of using this observational measure in a small sample. Future work should examine the reliability of this measure in a larger sample of teachers and students. Second, this study was conducted in schools in an underserved, urban community and findings may not generalize to schools in suburban and rural communities. Future research should thus examine the effects of BEST in CLASS-E in schools that, for example, have more resources and greater Tier 1 supports. Finally, given the small sample, we were not able to take nesting of students within classrooms into account when reporting findings from the TAM-EE. This is important, as researchers (Carter et al., 2014; Nemer et al., 2019) have discussed the likely variability between students associated with teacher attributions for problem behavior, that is, teachers likely hold different attributions for problem behavior between students rather than having stable attributions across all students.

In light of these limitations, future work should conduct studies examining interventions such as BEST in CLASS-E on important teacher outcomes, such as self-efficacy, burnout, and attributions for problem behavior with samples large enough to have adequate statistical power. In addition, these types of studies may allow for analyses examining change in teacher outcomes in classrooms with varying degrees of classroom-level adversity and within schools with varying degrees of school climate, to name but two potential moderators. Finally, studies with samples large enough to conduct analyses that take into account nesting of students within classrooms may be able to better assess teachers' attributions of problem behavior for individual students who may have more intensive behavioral support needs. Learning about how teachers perceive the attributions of problem behavior has implications for interventions designed to be delivered by teachers, particularly for students with the greatest behavioral challenges.

Conclusion

BEST in CLASS-E appears to have some promise for improving teacher outcomes. At the same time, limitations of this study do highlight the need for more work in this area, particularly related to teachers' emotional exhaustion and attributions for problem behavior. Given the significant, complex needs of students with and at risk for EBD, research is needed to leverage every possible angle we can to help support this population of our most vulnerable students.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by grants from the U.S. Department of Education's Institute for Education Sciences (R305A150246) and Office of Special Education Programs (325H140001). The opinions expressed by the authors are not necessarily reflective of the position of or endorsed by the U.S. Department of Education.

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