How Do School-based Prevention Programs Impact Teachers? Findings from a Randomized Trial of an Integrated Classroom Management and Social-Emotional Program

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Abstract

A number of classroom-based interventions have been developed to improve social and behavioral outcomes, yet few studies have examined how these programs impact the teachers who are implementing them. Impacts on teachers may affect students, and therefore also serve as an important proximal outcome to examine. The current study draws upon data from a school-based randomized controlled trial testing the impact of two prevention programs. In one intervention condition, teachers were trained in the classroom behavior management program, PAX Good Behavior Game (PAX GBG). In a second intervention condition, teachers were trained to use an integrated program, referred to as PATHS to PAX, of the PAX GBG and a social and emotional learning curriculum called Promoting Alternative Thinking Strategies (PATHS). This study aimed to determine whether both interventions positively impacted teachers, with a particular interest in the teachers' own beliefs and perceptions regarding self-efficacy, burnout, and social-emotional competence. The sample included 350 K-5 teachers across 27 schools (18 schools randomized to intervention, 9 to control). Multilevel latent growth curve analyses indicated that the PATHS to PAX condition generally demonstrated the most benefits to teachers, relative to both the control and PAX GBG conditions. These findings suggest that school-based preventive interventions can have a positive impact on teachers' beliefs and perceptions, particularly when the program includes a social-emotional component. Several possible mechanisms might account for the added benefit to teachers. Additional research is needed to better understand the mechanism by which these programs impact teachers, as well as students.

KEYWORDS: school-based prevention, PAX Good Behavior Game, PATHS, teacher efficacy, teacher social-emotional competence, group randomized controlled trial

How Do School-based Prevention Programs Impact Teachers? Findings from a Randomized Trial of an Integrated Classroom Management and Social-Emotional Program

A number of classroom behavior and social-emotional learning (SEL) programs have been tested and shown to have positive impacts on a range of students' outcomes, including aggressive behavior problems, substance use, and academic performance (e.g., Ialongo et al., 2001; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Yet the focus of these studies has largely been on the impacts for students, with little consideration of the potential impacts on the teachers who are implementing these programs. Research by Han and Weiss (2005) suggests that evidence-based programs may also improve teacher outcomes such as improving views of the school, increasing efficacy, and reducing burnout (also see Bradshaw, Koth, Thornton, & Leaf, 2009). The positive impacts may be 1) a secondary effect of the program's impact on students, 2) a result of exposure to the intervention content, 3) a function of the coaching support that accompanies some interventions, or 4) some combination thereof. The current study used data from a school-level, group randomized controlled trial (RCT) designed to test the impact of two prevention programs, one focused on reducing student disruptive behavior and improving on-task behavior, and the other focused on additionally improving students' social-emotional skills. The goal was to determine whether these approaches had positive effects on the teachers using them. This line of research has important implications for understanding the broader range of impacts of school-based prevention programs originally developed to improve outcomes for students, which may include impacts on teachers' beliefs and perceptions about themselves.

Teachers and the Classroom Context

Student misbehavior negatively impacts student learning and teachers' functioning. Research suggests that teaching is a stressful occupation, particularly for early-career teachers (Jalong & Heider, 2006; Johnson et al., 2005). Approximately 17% of new teachers leave within their first 5 years of teaching (Grey & Tale, 2015). Although it is difficult to determine the root cause of turnover, student misbehavior is a major contributor to stress, burnout, and job dissatisfaction (Evers, Tomic, & Brouwers, 2004; Geving, 2007; Klusmann, Kunter, Trautwein, Ludtke, & Baumert, 2008; Maslach, 1998). Stress and burnout are negatively associated with job performance, workplace satisfaction, and efficacy (Collie, Shapka, & Perry, 2012; Klassen & Chiu, 2010). In contrast, self-efficacy, or the belief in one's capacity to achieve a desired outcome, is associated with work satisfaction and student achievement (Caprara, Barbaranelli, Steca, & Malone, 2006). Jennings and Greenberg (2009) theorize that a "burnout cascade" may result when teachers lack the competency to manage behavioral challenges in the classroom. In these situations, student problem behavior and teacher emotional exhaustion increase as a result of the negative classroom climate.

On the other hand, encouraging positive student behavior in the classroom is a core component of high quality teaching (Emmer & Stough, 2001). Teachers who promote positive student interactions and prevent problem behavior develop high quality relationships with students and create a classroom climate that maximizes academic time and facilitates learning engagement (Hamre & Pianta, 2005).

Despite the relevance of student behavior and teachers' ability to manage the classroom to teachers' well-being, few studies have examined the extent to which classroom-based interventions designed to improve student behavior or classroom climate impact teachers.

Teachers and the School Context

In addition to classroom factors, there are characteristics of the school that impact teachers' perceptions of their workplace, their interactions with students, and their emotional health (Pas, Bradshaw, & Hershfeldt, 2010). For example, the extent to which a school is perceived by teachers as being a "healthy" organization has an impact on their workplace perceptions and behavior. A healthy school organization is one in which staff report high expectations for student achievement, positive relationships with one another, support from school leaders, and control over how resources are allocated (Hoy & Tarter, 1997). Therefore, it is important to account for teacher perceptions of school health when considering the impacts of classroom-based interventions. Furthermore, ecological models of development highlight the significance of the transactional relationship between the individual and the environment, suggesting that if a preventive intervention successfully improves some aspect of the classroom context or school health, it has the potential to impact the teachers in that environment.

Intervention Components and Mechanisms of Effect

The current study draws upon data from a school-based, group randomized controlled trial that included two evidence-based elementary school prevention programs: the PAX version of the Good Behavior Game (PAX GBG; Embry et al., 2003) and Promoting Alternative Thinking Strategies (PATHS; Greenberg, Kusché, & CPRG, 2011; Kusché, Greenberg, & CPPRG, 2011). A novel aspect of the trial was that it tested two different intervention conditions against a control group. The first was the PAX GBG alone. The second condition, referred to as PATHS to PAX (Domitrovich et al., 2010), was the integration of PATHS and the PAX GBG. The idea of integrating multiple evidence-based interventions, particularly behavioral and social emotional learning interventions, has been proposed in the prevention literature as a strategy to maximize impact and address multiple mechanisms that influence student outcomes (Bradshaw,

Bottiani, Osher, & Sugai, 2014; Domitrovich et al., 2010; Flay et al., 2005). One often-raised concern, however, is that these models may be more burdensome to implement so it is especially important to consider this when examining the effect of these interventions on teachers (Domitrovich et al., 2010). On the other hand, a fully integrated version complementary of evidence-based prevention strategies could have significant synergistic benefits for students and staff.

Secondary effects. Both PAX GBG and PATHS to PAX have the potential to positively impact teacher outcomes as a function of their positive impact on classroom management and student behavior; yet no studies regarding the effects of either intervention has examined their effect on teachers when they are provided as an in-service training. Each intervention takes a different approach to improving student outcomes. Specifically, PAX GBG focuses on providing teachers with an efficient way of reinforcing the inhibition of aggressive/disruptive and off-task behavior in a "game" like context (Embry et al., 2003). The PATHS curriculum (Greenberg, Kusché, & CPPRG, 2011; Greenberg et al., 1995; Kusché, Greenberg, & CPPRG, 2011) improves student outcome by training teachers to promote the development of students' emotional awareness and communication, self-regulation, social problem solving, and relationship management skills (e.g., interpersonal skills, conflict management). This occurs through explicit instruction by teachers in the context of developmentally sequenced lessons conducted approximately twice a week, daily routines that create a supportive environment for SEL, and generalization of the core strategies throughout the day (Greenberg & Kusche, 2006).

Several large RCTs of GBG have demonstrated positive effects on student peer relations, aggressive/off-task behavior, substance use, and academic outcomes (e.g., Bradshaw et al., 2009; Ialongo et al., 2001; Kellam et al., 2008), and a variety of newer studies show that the current

version (i.e., PAX GBG) replicates the expected early effects (Phillips-Smith, 2013; Smith, Osgood, Caldwell, Hynes, & Perkins, 2013; Wilson, Hayes, Biglan, & Embry, 2014) reported in prior GBG studies. Prior RCTs of PATHS have yielded positive effects on student social-emotional skills, peer relations, prosocial cognitive functioning, socially-competent behaviors, and behavioral adjustment (Greenberg & Kusche, 2006; Greenberg et al., 1995). Thus, the integration of these two programs presented the possibility of either maximizing benefits or increasing stress for teachers.

Teacher training and coaching in social emotional learning curricula. Teacher social-emotional competence is considered essential for creating a healthy classroom environment characterized by high quality student-teacher relationships and positive classroom management (Jennings & Greenberg, 2009; Jones & Bouffard, 2012). The relationship that teachers share with their students (i.e., their "relatedness" to students), is critical for teacher emotional well-being and motivation (Klassen, Perry, & Frenzel, 2012). Studies suggest that teachers' ratings of their own social and emotional skill positively relate to how they manage stress and their levels of burnout (Brackett, Palomera, Mojsa-Kaja, Reyes, & Salovey, 2010; Chan, 2003). Interventions with SEL content help students develop and internalize specific personal and social skills, such as those needed to regulate behavior and develop positive social relationships. These components also tend to foster emotionally supportive environments and positive relationships among students, teachers, and peers through communication about emotions and the use of social problem solving to resolve conflicts. Given this approach, we expected that if teachers delivering PATHS to PAX applied the same self awareness, emotion knowledge, interpersonal skills, and self-regulation strategies taught to students to themselves, they might also experience growth in their social-emotional competence. For these reasons, greater intervention effects on teachers'

social and emotional competence were expected for teachers in the PATHS to PAX condition compared to those in the control condition or to those that only delivered the PAX GBG.

Coaching support. In addition to the initial training, teachers in both intervention conditions received weekly support from a coach (see Becker, Darney, Domitrovich, Pitchford-Keperling, & Ialongo, 2013 for a description). The delivery structure of the coaching model was the same for both intervention conditions, but the content differed reflecting the different program content. It is possible that the experience of coaching may be a key feature of promoting positive effects on teachers. Research and theory suggest that the provision of ongoing support from a coach helps teachers develop personal resources such as self efficacy, facilitates high quality implementation, and has the potential to buffer the effects of stress (Han & Weiss, 2005; Wehby, Maggin, Partin, & Robertson, 2012). This is because coaching typically includes both practical guidance on specific intervention techniques and emotional support (Becker, Bradshaw, Domitrovich, & Ialongo, 2013). When a teacher develops a positive relationship with their coach, they may be more motivated to try new techniques or to reveal implementation challenges. It is also possible that the coach-teacher alliance is a source of social support that positively impacts teachers' emotional functioning. According to Han and Weiss (2005), the implementation process is a self-sustaining feedback loop that can be facilitated by consultation. In this conceptual model, teachers' success experiences and the feedback they receive from coaches plays an integral role in priming cognitions (e.g., self-efficacy beliefs, attributions of change) that lead to further skill development, high quality implementation, and ultimately, student behavioral change.

The Current Study

The current study examined the impact of PATHS to PAX and the PAX GBG on teacher factors including efficacy, burnout, and social-emotional competence. We hypothesized that teachers in both intervention groups would report lower levels of burnout and higher levels of behavior/classroom management self-efficacy as compared to control teachers. As a result of implementing PATHS to PAX, we anticipated that these teachers would report higher levels of efficacy for promoting social-emotional competencies in their students as well as describe themselves as being more socially and emotionally competent, because of their personal use of the program's SEL strategies, as compared to teachers in the PAX GBG alone and control conditions. To examine these hypotheses, we first compared the two intervention conditions to the control condition. We then explored the differential effectiveness of the two intervention conditions by comparing them to one another. Other teacher factors (i.e., teacher age and perceptions of school climate) that have been linked in previous research to teacher outcomes were controlled for in the analyses (Bradshaw et al., 2009). Finally, post hoc interactions between teacher characteristics (i.e., grade level taught, age, and perceived school climate) and intervention condition were conducted to explore for potential effect modifiers given the possibility that teachers' response to the intervention conditions may differ based on these teacher characteristics.

Method

Design Overview

Data for this study were drawn from a group RCT testing the efficacy of two intervention models conducted over the course of a single school year. All elementary schools in one large urban public school district were eligible to participate in the trial with the exception of those that participated in pilot efforts. School principals were sent a recruitment letter and then

attended an overview session to learn about the goals of the project. A total of 27 schools enrolled in the project. The schools were ranked in terms of the proportion of student suspensions in the prior school year and triads were formed based on schools closest in suspension rank. Three triads were randomly selected for inclusion in the study each year for three consecutive years (i.e., cohorts). Within each cohort, schools were then randomized to one of three conditions: the PAX GBG only, PATHS to PAX, and a control condition where teachers conducted their usual practice (see demographics in Table 1). This resulted in a total of 27 schools (9 in each condition) in the sample. Schools and teachers voluntarily participated and teachers provided written consent following procedures that were approved by the Institutional Review Board at Johns Hopkins University, where the study was conducted.

Participants

The current study sample included 350 K-5 teachers from the 27 participating schools. The sample of teachers was generally evenly split across three cohorts (31% cohort 1, 34% cohort 2, and 35% cohort 3) and across the three conditions (25% PAX GBG, 29% PATHS to PAX, 37% control). The vast majority of the sample was female (i.e., 88%) and less than half were 30 or younger (41.4%) and taught students in grades 3 through 5 (44.1%). Just over half of the teachers had a graduate degree (56.4%) (see Table 1 for additional demographics). The majority of teachers (89.6%) elected to provide data for this study. No differences by condition or grade level were found between teachers who participated versus those who did not.

Interventions

The GBG was originally developed by Barrish et al. (1969) but the widely cited and long-term RCT results of GBG were tested using a training and coaching manual written from a behavioral perspective (Turkkan, 1988). In 2002, Embry revised the original GBG training

manual making it commercially available. Furthermore, this version of the GBG, referred to as PAX GBG, incorporated more intrinsic rewards rather than extrinsic reinforcement. PAX GBG included strategies to increase the proximal effectiveness GBG and generalization of student behavior change when not playing the game (Embry, 2002). Embry and colleagues also (2003) added relational frames to adapt the game to any instructional activity and an array of evidence-based kernels (Embry & Biglan, 2008) to promote attentive and prosocial behaviors and a positive classroom environment. The materials were also made easier to implement and more acceptable to contemporary teachers (Embry, 2002; Embry et al., 2003).

Teachers in the PATHS to PAX condition implemented a classroom program that was the integration of PATHS and PAX GBG (see Domitrovich et al., 2010 for a detailed description). PATHS to PAX involved the creation of materials that integrated the program's rationales, and theory, allowing for a seamless, rather than oppositional, intervention (Domitrovich et al., 2010). For example, both PAX GBG and PATHS include positive recognition of students and the exchange of compliments, emphasized that students need authentic roles and voice, and included strategies to create a sense of community in the classroom yet had different ways of achieving these outcomes. PATHS to PAX incorporated each of these outcomes but used just one method for each rather than duplicating the individual program approaches. PATHS lessons were administered as part of PATHS to PAX on a weekly basis during the school year. Teachers were asked to deliver two lessons per week from November through May.

Training and Implementation Support Model

PAX GBG teachers received 1.5 days of training (i.e., one full day and a half day booster), and teachers in the PATHS to PAX condition received 3.5 days of training which consisted of the same content as the PAX GBG training integrated with 2 days (one additional

summer day and one day booster) of PATHS training. Following the summer training teachers received weekly face-to-face coaching across the school year (i.e., 31 weeks), which included check-ins, modeling, needs assessments, and technical assistance/performance feedback. Coaching was manualized with tailoring based on teacher need (see Becker, Bradshaw et al. [2013] and Becker, Darney et al. [2013] for details on the coaching model). There were no differences in PAX GBG implementation for teachers in the two intervention conditions in the trial (Domitrovich et al., 2015), but PATHS to PAX teachers did receive more contact with their coach over time (Pas et al., 2015).

Measures

Teacher efficacy. We assessed two distinct dimensions of teachers' perceived self-efficacy that reflect skills uniquely associated with the strategies included in the two interventions. The *Behavior Management Self-Efficacy Scale* (Main & Hammond, 2008) included 14 items regarding classroom behavior management (e.g., I am able to use a variety of behavior management techniques; T1 $\alpha = .93$, T4 $\alpha = .94$). The *Social-Emotional Learning Efficacy Scale* (Domitrovich & Poduska, 2008) included 8 items which focused on teachers' perceived efficacy to promote social-emotional skills in students (e.g., I am able to teach children to show empathy and compassion for each other; T1 $\alpha = .91$, T4 $\alpha = .93$). For each scale, item responses were provided on a 5-point Likert-type scale, and were averaged, with higher scores indicating greater efficacy. This measure was completed four times over the year.

Teacher burnout. Teachers completed the *Maslach Burnout Inventory* (MBI; Maslach et al., 1997) four times over the course of the year. Two scales were used in the analyses: *emotional exhaustion* (9 items, e.g., I feel used up at the end of the workday, T1 $\alpha = .91$, T4 $\alpha = .94$) and *personal accomplishment* (8 items, e.g., I deal very effectively with the problems of my students,

T1 α = .78, T4 α = .80). Responses were rated on a 7-point scale from *never* to *every day* and averaged (and rescored as needed) to create scale scores such that higher scores indicated greater emotional exhaustion (i.e., greater burnout) and greater personal accomplishment (i.e., lower burnout). Therefore low scores on emotional exhaustion and high scores on personal accomplishment were desired.

Teacher social-emotional competence. Teachers completed the *Mindfulness in Teaching Scale* (Frank, Jennings, & Greenberg, 2014) two times across the year. The self-report measure includes two dimensions of *intrapersonal mindfulness* (9 items, e.g., When I am in the classroom I have difficulty staying focused on what is happening in the present; T1 α = .85, T4 α = .86) and *interpersonal mindfulness* (5 items, e.g., Even when it makes me uncomfortable, I allow my students to express their feelings, T1 α = .68, T4 α = .75). These two scales were used as indicators of teacher social competence, where mindfulness strategies are assessed as a means for exhibiting social-emotional competence. For each scale, item responses were provided on a 5-point Likert-type scale, and were averaged, with higher scores indicating greater competence.

Perceptions of school climate. Teachers completed the 37-item *Organizational Health Inventory for Elementary Schools* (OHI; Hoy & Feldman, 1987) to assess the perceived organizational health of their school at baseline. The OHI has been used in various studies and a factor analysis has confirmed the following five-factor structure (Hoy & Tarter, 1997): *teacher affiliation*, *academic emphasis*, *collegial leadership*, *resource influence*, and *institutional integrity*. Item responses include a 4-point Likert-type scale; a total score for the OHI was calculated by averaging the responses on all items for each teacher, where higher scores indicating better health (37-items; α = .93). This variable was included as a baseline covariate in the models and to explore possible interactions with intervention status (Bradshaw et al., 2009).

Teacher demographics. Teachers provided their demographic data on a teacher information form at baseline. Teachers' gender, age, graduate degree attainment, and the grade level taught were included in the current study. The teacher-level demographics of gender (0=male, 1=female), education (0 = no graduate degree, 1 = graduate degree), grade level taught (0 = K-2nd, 1 = 3rd-5th), and young age (0 = older than 30, 1 = 20-30 years) were dichotomized.

Analyses

Two-level latent growth curve (LGC) models (MPlus 7.2; Muthén & Muthén, 1998-2012) was fit to test our primary hypotheses regarding the potential impacts of the two preventive interventions on teacher beliefs and perceptions over the course of the school year. Growth curves were estimated at the teacher and school levels, in order to account for the nesting of teachers within schools and the fact that the intervention was randomized at the school level. In all models, the intercept was centered at Time 1 (i.e., baseline) so that the effect of the intervention on the intercept represents intervention-control differences at baseline. The estimate on the slope parameter represents intervention-control differences in linear change in the outcome across the four repeated assessments of each of the teacher efficacy and burnout outcomes and the two repeated assessments of social-emotional competence. For social-emotional competence, the variance of the slope was fixed to zero because there were only two time points. The Level 1 intercept and slope were regressed on the teacher covariates, which included gender, education (i.e., attainment of a graduate degree), grade level taught, age, and overall OHI. The Level 2 intercept and slope were regressed on dummy variables for the intervention conditions (PAX GBG, PATHS to PAX, control). In order to compare the two intervention conditions to each other and to the control condition, two sets of models were estimated. First, the two intervention conditions were compared to the control condition by

including the two intervention dummies in the model and treating the control schools as the reference group (i.e., PAX GBG = 1, PATHS to PAX = 1, control = 0). Second, the integrated PATHS to PAX condition dummy and the control condition dummy were included in the model and the PAX GBG condition was treated as the reference group (i.e., PATHS to PAX = 1, control = 1, PAX GBG = 0). Age served as a proxy for work experience. Cross-level interactions between each of the Level 1 baseline characteristics and intervention condition were modeled in order to test for moderation effects. All continuous covariates were grand-mean centered, following guidelines by Enders and Tofighi (2007) for cluster randomized studies, where a higher level treatment effect is of interest. Dichotomous variables were uncentered.

We used an intent-to-treat approach (i.e., including all teachers who were in the study schools at any point during the school year) to estimate impacts of each intervention condition on change in teacher outcomes from the beginning of the school year (Time 1) to the end of the school year (Time 4). Maximum likelihood parameter estimates with robust standard errors that are robust to non-normality were used to estimate the parameters. In interpreting the results, we consider an alpha level of $p < .05$ as statistically significant, but because the design resulted in relatively low power to estimate the intervention effect (i.e., only 22 df), we note effects up to the .10 level (McClelland & Judd, 1993). Effect sizes were calculated by dividing the estimate of the impact of the intervention on the outcome's growth trajectory by the square root of the total variance obtained from a fully unconditional three-level model (Snijders & Bosker, 1999).

Missing Data

Listwise deletion due to missing data on the covariates would have resulted in the loss of 15% of the teachers. There were no differences between teachers with missing data and without missing data on two variables with complete information: intervention status and gender.

Therefore, all data were imputed using a multivariate imputation by chained equations (MICE) method of multiple multivariate imputation in STATA (Azur, Stuart, Frangakis, & Leaf, 2011; White, Royston & Wood, 2011). MICE imputes each variable conditional on all of the other variables in the imputation procedure, and iterates that process until convergence. Additionally, three interaction terms with teacher-related variables were included to account for differences within condition (i.e., design by grade taught, years of experience, and graduate degree). All variables included in the analyses in this paper were included in the imputation procedure. In addition, school-level predictors such as school size (enrollment), FARMs, and mobility were included to inform the imputation. A total of 10 imputed datasets were created.

Results

Descriptive statistics for the study variables are presented in Table 1 and Table 2. There were no intervention-control differences at baseline for any of the teacher outcomes across either of the intervention conditions (i.e., no significant intercept differences; see Table 3). This suggests that the two intervention conditions were equivalent to the control group on the intercepts of the main outcomes of interest, and thus the randomization was successful. We calculated the intraclass correlation coefficients (ICCs) of the outcome variables using unconditional models without covariates in MPlus. Across the four time points, ICCs were moderately low, ranging from .04 to .09 for social-emotional efficacy, .00 to .05 for behavioral management efficacy, .06 to .09 for emotional exhaustion, .03 to .09 for personal accomplishment, and .04 to .10 for depersonalization.

With regard to effects on outcomes (see details in Tables 3 and 4), there were significant intervention effects for the PATHS to PAX condition on the slopes of social-emotional efficacy (effect size [*ES*] = .16) and behavior management efficacy (*ES* = .12), indicating that teachers in

the integrated PATHS to PAX condition showed greater improvements in both forms of efficacy over the course of the school year, relative to teachers in the control condition (see Figures 1a, 1b). There was also a significant positive effect of the PATHS to PAX condition on the slope of personal accomplishment (*ES* = .10), indicating that teachers in the integrated condition tended to show increases in personal accomplishment over the course of the school year, relative to the control group (see Figure 1c). There were no significant intervention effects on the slopes of emotional exhaustion, depersonalization, or either dimension of social-emotional competence for teachers in either the PAX GBG or PATHS to PAX conditions relative to controls.

When outcomes for teachers in the PATHS to PAX condition were compared to those of teachers in the PAX GBG condition, we found a significant slope difference favoring the PATHS to PAX teachers on SEL efficacy (*ES* = .14), behavioral management efficacy (*ES* = .10), personal accomplishment (*ES* = .14), and the interpersonal dimension of social-emotional competence (*ES* = .44). Results are shown in Table 3. These results indicate that teachers in the PATHS to PAX condition showed increases on these four scales relative to teachers in the PAX GBG only condition (see Figure 1d). No differences between the two intervention conditions were found for the other teacher outcomes. Post hoc analyses explored potential interactions between the intervention status indicator and gender, education, grade level taught, age, and perceived school climate. None of the interactions reached statistical significance (i.e., results not reported).

Discussion

The field of school-based prevention is dominated by classroom interventions that target students, but there is growing interest in intervention programming for teachers. The current study took a unique perspective on this important topic by examining whether there were teacher

benefits associated with child-focused classroom interventions. The results were generally supportive of this hypothesis, but only when a more comprehensive program was used. Specifically, we hypothesized that regardless of theoretical approach, implementing an intervention designed to improve student behavior would positively impact teachers' self-efficacy regarding behavior management and reduce their experience of burnout, but that social-emotional content and practices were necessary to improve teacher efficacy for SEL and social-emotional competence. The hypotheses were partially supported. Teachers in the PATHS to PAX condition reported higher levels of efficacy for both behavior management and SEL compared to the control condition. In contrast to our expectations, PAX GBG alone did not produce any significant effects on teachers relative to the control condition. It is possible that the high correlations between the two efficacy scales limited our ability to detect difference between the two intervention groups or that the skills required of the two intervention models were not as distinct as were anticipated. Given findings of a recent study of PAX GBG, it is also possible that effects would have emerged if teachers in this condition received more supervision and coaching (Fruth & Huber, 2015).

There was a positive intervention effect on teacher burnout but only one of the three components of this construct and only for PATHS to PAX teachers. Teachers in that condition reported higher levels of personal accomplishment compared to both PAX GBG and control teachers. Neither intervention group reported reductions in emotional exhaustion. The lack of this effect will be easier to interpret when the student outcomes for the intervention trial are published, as it may be dependent on the PAX GBG intervention reducing student misbehavior.

While the intervention effect on personal accomplishment may be a function of improved student outcomes, it may also be a function of program exposure. Our interpretation of this

finding is that teachers in the PATHS to PAX condition acquired a more diverse set of strategies for interacting with students and managing their behavior as a function of being in the integrated condition. Without collecting qualitative data from teachers or student perceptions of teachers, it is impossible to know for certain whether this was the case. Finally, this positive effect may also be a function of the higher levels of coaching support received by teachers in the PATHS to PAX condition (Pas et al., 2015).

The results of the analyses comparing the two intervention conditions to one another revealed that teachers in the PATHS to PAX condition reported higher levels of social-emotional competence (i.e., as measured by the interpersonal mindfulness scale) compared to teachers who only conducted the PAX GBG in their classroom. Specifically, the items on this measure reflect the degree to which teachers feel that they skillfully engage in a variety of social-emotional interactions with others with an emphasis on self management. Given the emphasis on strategies to promote self regulation in the PATHS curriculum, we were not surprised to find this effect compared to the PAX GBG. The lack of a significant effect for the integrated intervention group compared to controls was disappointing. The estimate was in the desired direction and may have been significant within a larger sample. The lack of a difference between the intervention groups on teachers' intrapersonal awareness may indicate that self awareness requires a more intentional teacher-focused intervention component.

While not statistically significant, teachers in the PAX GBG condition rated themselves lower on the interpersonal mindfulness scale compared to controls. It is important to note that this study used the 2nd Edition PAX GBG manual for training teachers in both intervention conditions. The 3rd edition manual includes enhancements to facilitate teacher wellbeing learned in the course of this study and other studies (e.g. Biglan,et al. 2013), designed to reduce

experiential avoidance (Hinds et al., 2015). A recent randomized trial that included 30 hours of pre-service training with the 3rd edition showed large differences on teacher efficacy ratings (Fruth & Huber, 2015). Therefore, it is possible that comparing the current version of PAX GBG and/or providing more coaching would result in a different pattern of findings.

Although we did not hypothesize any specific interactions involving the baseline demographic and school climate data, we did explore these associations. Age and ratings of school organizational health were consistent predictors of the teacher outcome variables; however, neither of these factors nor any of the other factors resulted in significant interactions with intervention status in the post hoc analyses. Again, the lack of significance in these interactions may be due to limited power resulting from the relatively small sample size of teachers (Matthieu, Aguinis, Culpepper, & Chen, 2012).

Limitations and Strengths of the Current Study

A limitation of the current study was the inability to explore the indirect mechanisms proposed in the study's theory of change. Once the efficacy of the interventions on student outcomes has been established, we intend to examine a mediated pathway of program impact through improvements in student outcomes and classroom context. A second limitation is that the intervention study design did not include a PATHS only condition, so we are unable to discern the unique contribution of the SEL-focused activities. However, the analyses comparing the two intervention conditions provide some preliminary support for the idea that the added exposure to the integrated program improved teachers' social-emotional competence. Relative to the PAX GBG, teachers, PATHS to PAX teachers reported higher levels of interpersonal social-emotional competence, and the size of this effect was relatively large (.44). Finally, it is important to note that we only included a relatively narrow band of teacher outcomes. We also

relied heavily on teacher self-report measures (as compared to observational or physiological indicators). Despite these limitations, there are several strengths that should be recognized. For example, few studies have examined whether student interventions have an effect on teachers. The size of the teacher sample is relatively large for this type of study. Although the number of schools (*N*=27) was relatively small for the use of multilevel modeling and may have reduced power, this approach was warranted given the nested design of the study, the relatively large ICCs for some of the outcomes (i.e., ranging from .01-.11), and the fact that randomization occurred at the school level. Finally, covariates at both the school and teacher levels were included.

Conclusions and Implications

The findings of this study suggest that school-based interventions that include SEL strategies may have broader benefits on teachers than previously realized. Some of the effect sizes were small but they have important policy implications because they document the secondary benefit of an evidence-based intervention that was not explicitly targeting teachers. Schools experience a great deal of pressure to maximize students' academic performance, which sometimes restricts any programming that is not perceived as central to that outcome. If evidence-based classroom interventions have benefits for both students and teachers, this may provide a justification for their use. This is particularly true if the programs impact teacher factors, such as self-efficacy and burnout, which are associated with student achievement, job performance, and retention (Caprara, Barbaranelli, Steca, & Malone, 2006; Klassen & Chiu, 2010). In the future, prevention researchers who study the effectiveness of school-based interventions should consider also measuring the impact of these programs of the individuals implementing them.

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Table 1. *Descriptive Information on Teacher Participants (n = 350) and Schools (N=27)*

Teacher Characteristics (%)	**Total**	**PATHS to PAX**	**PAX GBG**	**Control**
Female	87.7	88.1	86.8	88.3
Late E.S.	40.6	41.6	38.0	42.2
Young Age	37.7	38.6	42.1	36.2
Grad degree	51.4	50.5	53.7	50.0
OHI	2.89 (.52)	3.00 (.49)	2.85 (.49)	2.82 (.56)
Teacher Self-Report		**Mean (*SD*)**		
BM Efficacy				
Time 1	3.85 (.64)	3.84 (.58)	3.83 (.64)	3.82 (.68)
Time 2	3.95 (.58)	3.90 (.58)	3.94 (.58)	4.00 (.59)
Time 3	3.95 (.58)	3.98 (.54)	3.96 (.57)	3.93 (.60)
Time 4	4.04 (.60)	4.16 (.56)	4.05 (.60)	3.96 (.63)
SEL Efficacy				
Time 1	3.61 (.68)	3.56 (.62)	3.56 (.68)	3.56 (.73)
Time 2	3.67 (.63)	3.60 (.61)	3.64 (.64)	3.69 (.69)
Time 3	3.68 (.68)	3.70 (.60)	3.66 (.66)	3.62 (.73)
Time 4	3.77 (.68)	3.93 (.64)	3.76 (.71)	3.63 (.73)
Emotional Exhaustion				
Time 1	3.39 (1.39)	3.33 (1.33)	3.41 (1.45)	3.40 (1.40)
Time 2	3.28 (1.40)	3.32 (1.38)	3.39 (1.46)	3.03 (1.31)
Time 3	3.20 (1.44)	3.21 (1.43)	3.29 (1.43)	3.03 (1.49)
Time 4	3.19 (1.48)	3.10 (1.41)	3.17 (1.48)	3.27 (1.54)
Personal Accomplishment				
Time 1	5.90 (0.86)	5.81 (.86)	5.96 (.85)	5.92 (.88)
Time 2	5.84 (0.87)	5.85 (.85)	5.87 (.82)	5.79 (.98)
Time 3	5.97 (0.84)	6.06 (.68)	5.86 (.88)	6.03 (.95)
Time 4	5.96 (0.83)	6.09 (.75)	5.91 (.79)	5.91 (.91)
Intrapersonal Mindfulness				
Time 1	4.12 (.59)	4.18 (.50)	4.07 (.66)	4.11 (.60)
Time 4	4.12 (.56)	4.11 (.54)	4.11 (.59)	4.13 (.54)
Interpersonal Mindfulness				
Time 1	4.05 (.55)	4.00 (.54)	4.09 (.56)	4.05 (.55)
Time 4	4.10 (.55)	4.18 (.52)	4.05 (.60)	4.09 (.50)
School-level Variables				
School size	374 (156)	308 (67)	436 (202)	378 (156)
FARMs rate	88.09 (6.57)	88.12 (4.33)	86.10 (7.25)	90.06 (7.76)
Mobility rate	35.38 (8.20)	37.70 (9.30)	34.04 (7.53)	34.38 (8.14)

Table 2: *Correlations between Time 1 and Time 4 Outcomes*

	1	2	3	4	5	6	7	8	9	10	11	12	13
Time 1													
1 BM Efficacy													
2 SEL Efficacy	.85**												
3 Emotional Exhaustion	-.38**	-.42**											
4 Personal Accomplishment	.55**	.51**	-.39**										
5 Depersonalization	-.35**	-.34**	.53**	-.38**									
6 Intrapersonal SEC	.48**	.44**	-.44**	.49**	-.48**								
7 Interpersonal SEC	.45**	.45**	-.24**	.45**	-.30**	.44**							
Time 4													
8 BM Efficacy	.69**	.56**	-.28**	.41**	-.37**	.45**	.28**						
9 SEL Efficacy	.59**	.61**	-.31**	.45**	-.32**	.42**	.30**	.86**					
10 Emotional Exhaustion	-.34**	-.40**	.62**	-.35**	.38**	-.41**	-.18**	-.49**	-.53**				
11 Personal Accomplishment	.41**	.41**	-.32**	.61**	-.32**	.35**	.32**	.59**	.63**	-.53**			
12 Depersonalization	-.37**	-.39**	.38**	-.36**	.53**	-.37**	-.18**	-.48**	-.50**	.65**	-.49**		
13 Intrapersonal SEC	.47**	.43**	-.29**	.41**	-.35**	.66**	.35**	.56**	.55**	-.51**	.49**	-.51**	
14 Interpersonal SEC	.29**	.26**	-.11	.27**	-.19**	.30**	.43**	.48**	.46**	-.29**	.49**	-.30**	.40**

Note. T= time, SEL = social-emotional learning, BM = behavior management, SEC = social-emotional competence ** $p < .01$

Table 3. *Unstandardized Estimates and Standard Errors of Impacts of the PATHS to PAX (P2P) Program and the PAX GBG on Teacher Self-Reports of their Efficacy, Burnout, and School Organizational Health*

	Social-Emotional Efficacy		Behavior Efficacy		Emotional Exhaustion		Personal Accomplishment		Depersonalization		Intrapersonal Competence		Interpersonal Competence	
	B	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*
Intercept														
P2P	-0.15	0.12	-0.09	0.08	0.11	0.23	-0.15	0.13	-0.04	0.11	0.04	0.08	-0.08	0.09
PAX GBG	0.06	0.12	0.03	0.07	0.13	0.25	0.02	0.14	0.14	0.13	0.00	0.08	0.05	0.07
Female	-0.05	0.16	-0.05	0.12	0.46*	0.19	-0.06	0.16	0.08	0.13	0.10	0.09	0.04	0.10
Young Age	-0.18*	0.08	-0.13^{t}	0.07	0.22	0.17	-0.22**	0.08	0.25*	0.10	-0.25**	0.08	-0.04	0.06
OHI	0.50***	0.10	0.32***	0.07	-0.83***	0.16	0.60***	0.11	-0.37***	0.12	0.38***	0.08	0.33	0.07
Grad degree	0.05	0.12	0.05	0.08	-0.02	0.17	0.05	0.11	0.00	0.10	0.12	0.08	0.07	0.06
Late E.S.	-0.11	0.09	0.07	0.06	-0.09	0.11	-0.1	0.07	0.07	0.11	0.06	0.06	-0.04	0.06
Slope														
P2P	0.12**	0.04	0.07*	0.04	-0.04	0.07	0.09*	0.04	0.01	0.03	-0.07	0.07	0.14	0.11
PAX GBG	0.02	0.04	0.00	0.04	-0.07	0.07	-0.03	0.04	-0.03	0.04	0.00	0.07	-0.11	0.09
Female	0.03	0.06	0.04	0.05	-0.06	0.08	0.01	0.06	-0.10^{t}	0.06	0.12	0.08	-0.04	0.12
Young Age	0.02	0.04	0.02	0.03	-0.04	0.06	0.05	0.04	-0.02	0.04	-0.02	0.07	0.11	0.07
OHI	-0.10***	0.03	-0.05	0.03	0.03	0.07	-0.08	0.06	-0.01	0.05	-0.12*	0.06	-0.08	0.07
Grad degree	0.00	0.04	-0.01	0.03	-0.09^{t}	0.05	-0.02	0.03	-0.05	0.04	-0.07	0.06	-0.08	0.07
Late E.S.	-0.02	0.04	-0.03	0.03	0.09	0.06	-0.02	0.03	0.00	0.04	-0.08	0.05	-0.01	0.07
Fit indices														
$\chi 2(26)$	63.7		61.5		40.8		90.6		61.1		.29		.27	
CFI	.886		.907		.980		.915		.935		.999		.998	
TLI	.825		.858		.972		.869		.901		1.000		1.000	
RMSEA	.06		.06		.04		.08		.06		.000		.000	
$SRMR_w$	.029		.025		.018		.033		.030		.002		.004	
$SRMR_B$	.161		.235		.074		.116		.088		.024		.048	

Note. Control group is reference group. Young Age = 21-30 years v. other. OHI = Perceptions of climate as measured by Organizational Health Inventory scale score. Grad degree = Masters degree or higher v. other. Late E.S. = taught grades 3 and up. *SE*

= standard error. SEL = social-emotional learning; BM = behavior management. CFI = Comparative Fit Index. TLI = Tucker Lewis Index. RMSEA = Root Mean Square Error of Approximation. $SRMR_w$ = Standardized Root Mean Square Residual Within. $SRMR_B$ = Standardized Root Mean Square Residual Between. $^{t}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 4. *Unstandardized Estimates and Standard Errors of the Impacts of PATHS to PAX (P2P) Relative to PAX GBG on Teacher Self-Reports of their Efficacy, Burnout, and School Organizational Health*

	SEL Efficacy		BM Efficacy		Emotional Exhaustion		Personal Accomplishment		Depersonalization		Intrapersonal Competence		Interpersonal Competence	
	B	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*
Intercept														
P2P	-0.21*	0.11	-0.12^{t}	0.06	-0.02	0.25	-0.17	0.15	-0.18	0.12	0.04	0.09	-0.13	0.08
Control	-0.06	0.12	-0.03	0.07	-0.13	0.25	-0.02	0.14	-0.14	0.13	0.00	0.08	-0.05	0.07
Female	-0.05	0.16	-0.05	0.12	0.46*	0.19	-0.06	0.16	0.08	0.13	0.10	0.09	0.04	0.10
Young Age	-0.18*	0.08	-0.13^{t}	0.07	0.22	0.17	-0.22**	0.08	0.25*	0.10	-0.25**	0.08	-0.04	0.06
OHI	0.50***	0.10	0.32***	0.07	-0.83***	0.16	0.59***	0.11	-0.37***	0.12	0.38***	0.08	0.33***	0.07
Grad degree	0.05	0.12	0.05	0.08	-0.02	0.17	0.05	0.11	0.00	0.10	0.12	0.08	0.07	0.06
Late E.S.	-0.11	0.09	0.07	0.06	-0.09	0.11	-0.10	0.07	0.07	0.11	0.06	0.06	-0.04	0.06
Slope														
P2P	0.10***	0.04	0.07*	0.03	0.02	0.07	0.12**	0.04	0.05	0.04	-0.07	0.07	0.25**	0.09
Control	-0.02	0.04	0.00	0.04	0.07	0.07	0.03	0.04	0.03	0.04	0.00	0.07	0.11	0.09
Female	0.03	0.06	0.04	0.05	-0.06	0.08	0.01	0.06	-0.10	0.06	0.12	0.08	-0.04	0.12
Young Age	0.02	0.04	0.02	0.03	-0.04	0.06	0.05	0.04	-0.02	0.04	-0.02	0.07	0.11	0.07
OHI	-0.10**	0.03	-0.05	0.03	0.03	0.07	-0.07	0.06	-0.01	0.05	-0.12*	0.06	-0.08	0.07
Grad degree	0.00	0.04	-0.01	0.03	-0.09^{t}	0.05	-0.02	0.04	-0.05	0.04	-0.07	0.06	-0.08	0.07
Late E.S.	-0.02	0.04	-0.03	0.03	0.09	0.06	-0.02	0.03	0.00	0.04	-0.08	0.05	-0.01	0.07
Fit indices														
χ2(26)	65.8		61.49		40.78		89.25		60.99		.29		.27	
CFI	.880		.907		.980		.916		.935		.999		.998	
TLI	.815		.858		.972		.871		.901		1.000		1.000	
RMSEA	.064		.062		.038		.083		.061		.000		.000	
$SRMR_w$	.029		.025		.018		.032		.030		.002		.004	
$SRMR_B$	.179		.283		.087		.107		.084		.024		.049	

Note. PAX GBG is reference group. $^{t}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. Young Age = 21-30 years v. other. OHI = Perceptions of climate as measured by Organizational Health Inventory scale score. Grad degree = Master's degree or higher v. other.

Late E.S. = taught grades 3 and up. *SE* = standard error. SEL = social-emotional learning; BM = behavior management. CFI = Comparative Fit Index. TLI = Tucker Lewis Index. RMSEA = Root Mean Square Error of Approximation. $SRMR_w$ = Standardized Root Mean Square Residual Within. $SRMR_B$ = Standardized Root Mean Square Residual Between.

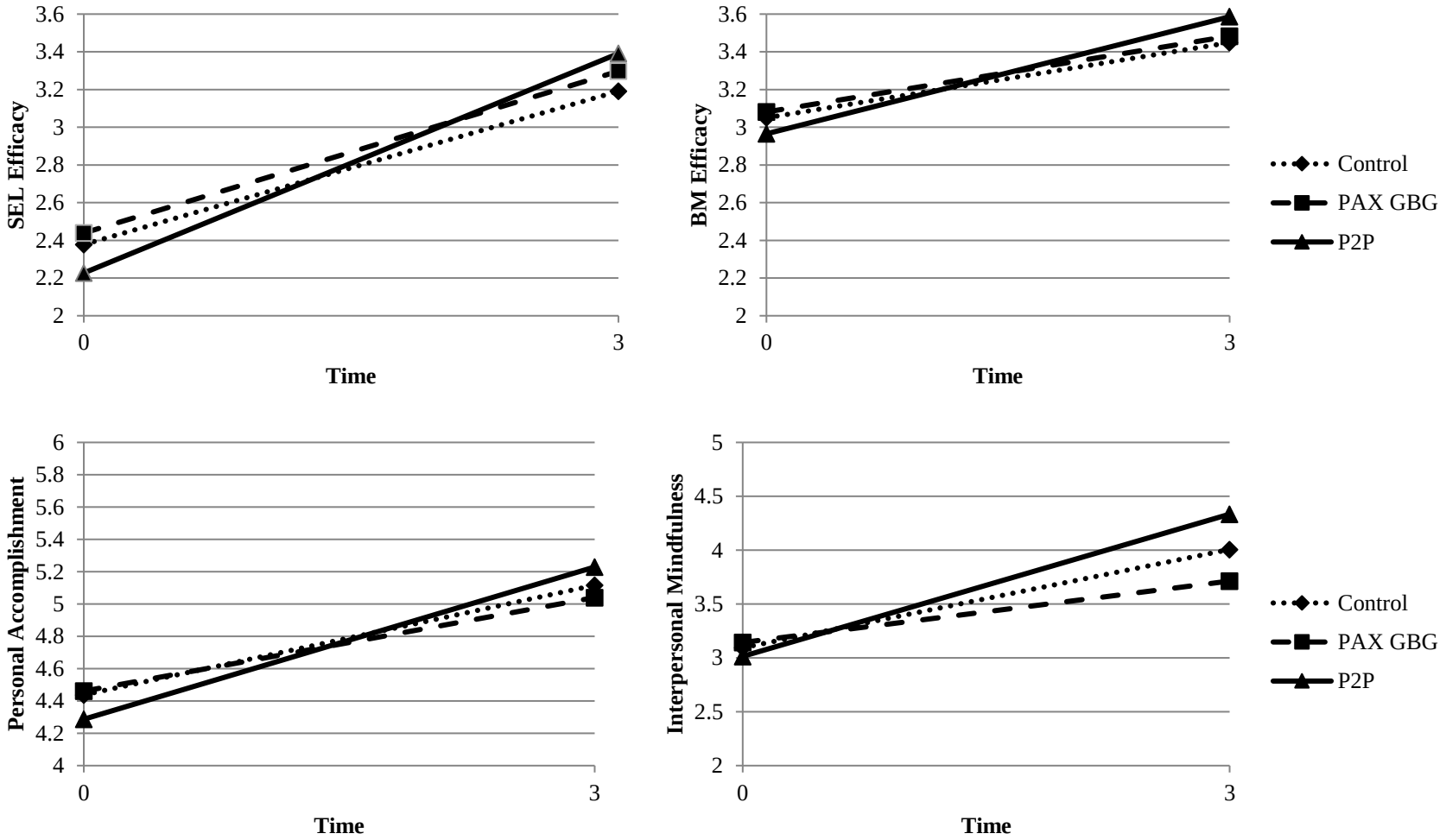

Figure 1. *Impact of PATHS to PAX and PAX GBG on social-emotional efficacy (top left;1a), behavioral management efficacy (top right;1b), personal accomplishment (bottom left;1c), and interpersonal mindfulness (bottom right;1d).*

Note. Time was centered at Time 1 so that Time 1 = 0 and Time 4 = 1