

Improving Classroom Learning Environments by Cultivating Awareness and Resilience in Education (CARE): Results of a Randomized Controlled Trial

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Cultivating Awareness and Resilience in Education (CARE for Teachers) is a mindfulness-based professional development program designed to reduce stress and improve teachers' performance and classroom learning environments. A randomized controlled trial examined program efficacy and acceptability among a sample of 50 teachers randomly assigned to CARE or waitlist control condition. Participants completed a battery of self-report measures at pre- and postintervention to assess the impact of the CARE program on general well-being, efficacy, burnout/time pressure, and mindfulness. Participants in the CARE group completed an evaluation of the program after completing the intervention. ANCOVAs were computed between the CARE group and control group for each outcome, and the pretest scores served as a covariate. Participation in the CARE program resulted in significant improvements in teacher well-being, efficacy, burnout/time-related stress, and mindfulness compared with controls. Evaluation data showed that teachers viewed CARE as a feasible, acceptable, and effective method for reducing stress and improving performance. Results suggest that the CARE program has promise to support teachers working in challenging settings and consequently improve classroom environments.

Keywords: teacher stress, teacher efficacy, mindfulness, burnout, classroom climate

The U.S. policy agenda to improve student academic outcomes has begun to focus attention on teacher quality (Wilson et al., 2008). Furthermore, the public recognizes that a good education should enhance academic achievement and students' character, social-emotional competence, and civic engagement (MetLife, 2002; Public Agenda, 2002; Rose & Gallup, 2000). The Collaborative for Academic Social and

Emotional Learning (CASEL) defines social and emotional competence (SEC) as involving five primary skills: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Collaborative for Academic, Social and Emotional Learning, 2003). Cultivating teachers' SEC and well-being may be an important component in fulfilling this agenda (Jennings & Greenberg, 2009). However, little research has been devoted to exploring methods for promoting these skills among teachers. Here we test the effectiveness of the Cultivating Awareness and Resilience in Education (CARE) model of professional development on teacher's well-being, classroom efficacy, burnout, stress, and health.

The prosocial classroom theoretical model emphasizes the significance of teachers' social and emotional competence (SEC) and well-being in the development and maintenance of supportive teacher–student relationships, effective classroom management, and social and emotional learning (SEL) program effectiveness (Jennings & Greenberg, 2009). These fac-

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tors, as well as teachers' classroom management and instructional skills contribute to creating a classroom climate that is conducive to learning and that promotes positive developmental behavioral and academic outcomes among students (see Figure 1). The model also recognizes that teachers' well-being and SEC are also affected by the school and community context. For example, supportive school culture, strong principal leadership and collegiality predict teachers' job satisfaction (Johnson, Kraft, & Papay, 2012). Although the model suggests that well-being and social and emotional competence should benefit teachers at every level, effects on student outcomes may vary by grade, due to differences in time students spend with one particular teacher. Because students at the elementary level spend most of their day with one teacher, the relationship between a teacher's well-being and SEC and student academic and behavioral outcomes may be stronger at the elementary level than the secondary level. However, the model proposes that teachers' well-being and social and emotional competence are also important contributors to the quality of their performance that have been overlooked in

previous research. An extensive review of the literature supporting the links in this model can be found elsewhere (Jennings & Greenberg, 2009). The following is a brief review of this research.

The bidirectional relationship between classroom improvement and student improvement proposed in this model is well documented in the literature (see Allen, Pianta, Gregory, Mikami, & Lun, 2011; Crosnoe et al., 2010; Kane & Staiger, 2008; Mashburn, Downer, Hamre, Justice, & Pianta, 2010; Mashburn et al., 2008). Furthermore, there is evidence that teacher-student relationships (Merritt, Wanless, Rimm-Kaufman, Cameron, & Peugh, 2012; Wang, Brinkworth, & Eccles, 2012), effective classroom management (Marzano, Marzano, & Pickering, 2003), and the effective implementation of social and emotional learning (SEL) programs (Brock, Nishida, Chiong, Grimm, & Rimm-Kaufman, 2008; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011) are related to both classroom climate and student outcomes.

For example, supportive teacher-student relationships play an important role in students'

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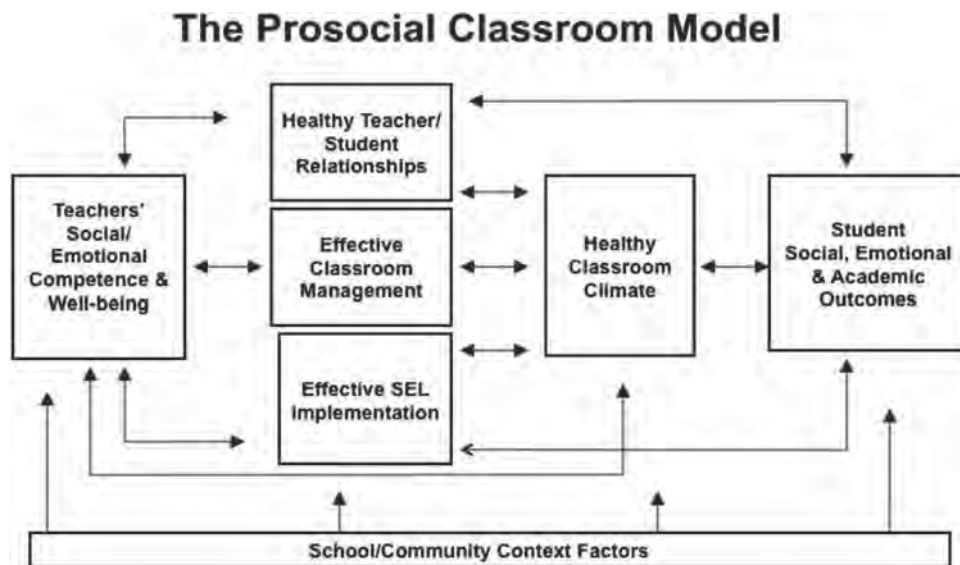


Figure 1. A Model of Teacher Well-Being and Social and Emotional Competence, Support, and Classroom and Student Outcomes. From Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79, 491–525. Reprinted with permission from SAGE Publications, Inc.

feelings of connectedness to school and both their academic and social-emotional outcomes (Abbott et al., 2002; Gambone, Klem, & Connell, 2002; McNeely, Nonnemaker, & Blum, 2002; Osher et al., 2007). When teachers hold positive attitudes toward students and build a strong sense of community among their students, problem behaviors decline and on-task behaviors increase (Battistich, Schaps, Watson, Solomon, & Lewis, 1997; Solomon, Battistich, Watson, Schaps, & Lewis, 2000). Furthermore, evidence suggests that this link is bidirectional (Houts, Caspi, Pianta, Arseneault, & Moffitt, 2010).

Research has also demonstrated links between teachers' psychosocial characteristics and the critical elements of the prosocial classroom model. Several studies have found significant relationships between teachers' psychosocial characteristics and classroom climate. For example, in a study that examined 730 kindergarten classrooms, teacher psychological variables were stronger predictors of classroom quality than were teacher educational attainment and experience (La Paro et al., 2009). Furthermore, de Schipper, Riksen-Walraven, Geurts, and Derksen (2008) reported that teacher positive mood was positively related to high quality caregiving among a sample of 238 early childhood educators. In our previous work, we found relationships among depressive symptoms and all three dimensions of the CLASS measure of classroom climate (Pianta, La Paro, & Hamre, 2003) among a sample of 35 preschool teachers (Jennings & Snowberg, 2009). Depressive symptomology was significantly negatively correlated with emotional support, organization, and instructional support. Positive affect, self-compassion, depersonalization, teaching efficacy, and mindfulness were positively correlated with emotional climate. Other research has found support for the bidirectionality of this link (Byrne, 1994).

Teacher Stress

Teachers must employ a high degree of SEC to successfully manage the social and emotional dynamics of the classroom environment (Shulman, 2005). When teachers have difficulties relating to students and managing their classroom, both student behavior and achievement suffer (Marzano et al., 2003). As classroom

social interactions deteriorate and conflicts escalate, the demands on the teacher multiply, which can lead to a "burnout cascade" (Jennings & Greenberg, 2009, p. 492). Faced with these challenging classroom conditions, teachers may respond with hostility and enact punitive measures, reactions that may disrupt student motivation and contribute to a self-sustaining cycle of classroom disruption. High levels of distress may lead to teacher burnout (Tsouloupas, Carson, Matthews, Grawitch, & Barber, 2010) and deteriorating teacher performance and student behavior and achievement (Osher et al., 2007).

Teachers who report high levels of burnout are at increased risk of physical and mental illness, resulting in higher levels of absenteeism (Schonfeld, 2001), reduced quality of performance, and frequent irritable mood (Huberman, 1993). High rates of teacher burnout (Johnson et al., 2005; Travers & Cooper, 1993) and the corresponding low overall quality of classroom instruction (Blase, 1986; Pianta, Belsky, Houts, & Morrison, 2007; Travers, 2001) support the need for specialized professional development that promotes teachers' SEC. Further, reducing teacher stress should maximize their capacity to create and maintain optimal classroom organization and to provide emotional support to their students.

Mindfulness-Based Approaches

There has been growing interest in applying a mindfulness-based approach to supporting teachers' SEC and promoting prosocial classroom outcomes (Jennings, Roeser, & Lantieri, 2012; Roeser, Skinner, Beers, & Jennings, 2012). "Mindfulness" refers to a particular kind of attention characterized by intentionally focusing on the present moment with a curious, nonjudgmental attitude (Kabat-Zinn, 1994). Mindfulness can be conceptualized as a way of paying attention and as the practice of paying attention in this way. The practice of mindfulness typically involves directing and maintaining attention on a specific target, such as the breath, but there are numerous approaches (Vago & Silbersweig, 2012). Research on the effects of mindfulness training with adults has shown numerous positive effects including enhanced body awareness (Lazar et al., 2005), improved attention, and working memory (Jha, Kropinger, & Baime, 2007; Jha, Stanley, Kiyoo-

naga, Wong, & Gelfand, 2010; Tang et al., 2009; van der Hurk, Gionmi, Gielen, Speckens, & Barendregt, 2010; Zeidan, Johnson, Diamond, David, & Goolkasian, 2010). Other benefits include increases in positive mood and immune response (Davidson et al., 2003), empathy (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007), improved emotion regulation, and reduced stress (Chiesa & Serreti, 2009; Eberth & Sedlmeier, 2012; Jimenez, Niles, & Park, 2010).

For teachers, practicing mindfulness may be an effective means of reducing stress and promoting well-being and may also promote self-awareness and self-regulation—two important intrapersonal social and emotional competencies (Vago & Silbersweig, 2012). Regular mindfulness practice may facilitate emotional self-awareness (Brown & Ryan, 2003) and thereby promote cognitive and emotional regulation by supporting deep reflective capacities and perspective-taking (Zelazo & Cunningham, 2007). Practicing mindfulness may also help teachers reappraise stressful situations more effectively. In this way, mindfulness-based interventions may be ideally suited to promote the development of the “mental set” associated with effective classroom management (Kounin, 1970; Marzano et al., 2003).

The CARE Program

The present study examines whether the Cultivating Awareness and Resilience in Education (CARE) professional development program can improve teachers’ social-emotional competence (SEC) and well-being. CARE combines emotion skills instruction, mindful awareness practices, and compassion building activities to provide teachers with skills to reduce their emotional stress and to improve the social and emotional skills required to build supportive relationships with their students, manage challenging student behaviors, and provide modeling and direct instruction for effective social and emotional learning. CARE is an intensive 30-hr program presented in four day-long sessions over 4–6 weeks, with intersession phone coaching and a booster held approximately two months later. Although this level of intensity is unusual for teacher professional development, it is typical of mindfulness-based interventions that require

practice time to promote behavioral change (Cullen, 2011).

The typical one day workshop approach to in-service professional development has been criticized for lacking continuity and coherence and for failing to appreciate the challenges and complexity of teachers’ work (Parsad, Lewis, Farris, & Breene, 2001; Selman, 2003). In contrast, the CARE program is a comprehensive, well-specified, fully-developed professional development model grounded in theory and basic research, and aimed at strengthening teachers’ personal resources and their performance. It is designed to give teachers the tools to engage in daily professional learning to better understand themselves and their students within the classroom context and how best to support student learning (Fullan, Hill, & Crevola, 2006).

The CARE Intervention Logic Model

Figure 2 illustrates the CARE intervention logic model. K–12 teachers who participate in the CARE intervention are introduced to emotion skills instruction, mindful awareness practices, and caring and compassion practices. These are hypothesized to produce the proximal outcomes of teacher improvement (well-being, efficacy, and mindfulness) and classroom improvement (organization and instructional and social support). These proximal outcomes are hypothesized to result in the distal outcomes of student improvement (student/teacher relationships, academic achievement, behavior). In addition, we hypothesize that teachers’ classroom management and instructional skills may moderate the effects of the CARE intervention; that is, teachers who are more skillful will demonstrate more gains in the proximal outcomes as a result of participation in the training. However, we anticipate that participation in CARE will also promote these skills. In the current study we examine a limited and specific part of the larger logic model focused on the impact of CARE on teacher changes in well-being, classroom efficacy, burnout, stress, and health. Next we describe the components of the program and their rationale.

The CARE Program Components

Following best practices in adult learning, CARE introduces material sequentially, utiliz-

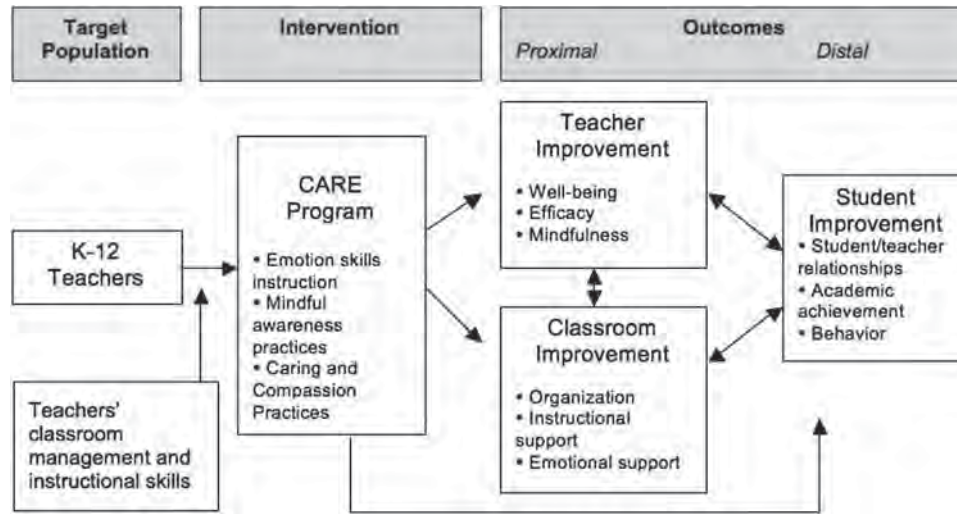


Figure 2. The CARE Intervention Model.

ing a blend of didactic, experiential, and interactive learning processes (Bash, 2005). CARE combines direct instruction in specific skills and opportunities to practice these skills, individual reflective writing activities, small and large group discussion, and activities to complete at home or at work. These learning activities increase in difficulty over the course of the program. Table 1 contains examples of activities from each CARE component organized by level of complexity. The program also includes a coaching component that typically takes place between program sessions. Each participant meets by phone with a facilitator who reviews their progress, answers questions, and helps address challenges that may arise. Program materials include a CARE Facilitator's Manual, a Participant Workbook containing presented information, exercises, and homework activities, a Participant CD containing guided activities for home practice, and a series of PowerPoint slides that support the presentation of the didactic portions of the program. Next we describe each component of the CARE program.

Emotion Skills Instruction

CARE introduces emotion skills instruction using a combination of didactic instruction and experiential activities (e.g., reflective practices and role-plays), in order to support teachers' understanding, recognition, and awareness of

emotional states and explore their habitual emotional patterns and related cognitions (Ekman, 2003). Teachers learn how to practice self-induction of positive emotions to promote resilience and self-regulation (Cohn, Brown, Fredrickson, Milkels, & Conway, 2009; Fredrickson & Losada, 2005). These practices are designed to help teachers to be more sensitive to students' needs, more aware of the classrooms' emotional climate, and more self-aware and less reactive when dealing with challenging student behavior.

Mindfulness Practices

Mindfulness practices involve deliberate training of attention to cultivate present moment awareness of experience, and, to promote insight, reflection, and concentration (Kabat-Zinn, 1994; Zajonc, 2006). Mindfulness can be conceptualized as a trait and a state that can be developed with practice (Brown, Ryan, & Creswell, 2007). Mindfulness-based interventions (MBIs) are effective in reducing stress (Werner & Gross, 2009) and improving psychological functioning (Weinstein, Brown, & Ryan, 2009). Mindful awareness practices promote a "nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is

Table 1
CARE Program Components

Emotion skills instruction	Mindfulness/Stress reduction practices	Compassion practices
Approximately 40%	Approximately 40%	Approximately 20%
<ol style="list-style-type: none"> 1. Introduction to emotions, purpose, universal expressions, relevant brain research 2. How emotions affect teaching and learning 3. Didactic information about “uncomfortable” or negative emotions (anger, fear, sadness) including physiology, cognitive and behavioral responses 4. Didactic information about “comfortable” or positive emotions (joy, appreciation) including physiology, cognitive and behavioral responses 5. Exploring bodily awareness of emotions 6. Exploring individual differences in emotional experiences (emotional profile, triggers & scripts) 8. Practice using mindful awareness and reflection to recognize and manage strong emotions 	<ol style="list-style-type: none"> 1. Body awareness reflection 2. Basic breath awareness practice 3. Mindfulness of thoughts and emotion practice 4. Mindful movement practices (standing, walking, stretching, centering) 9. Practice maintaining mindful awareness in front of a group 10. Role plays to practice mindfulness in the context of a strong emotion related to a challenging classroom situation 	<ol style="list-style-type: none"> 1. “Caring practice” – A series of guided reflections focused on caring for self, loved one, colleague, challenging person 2. Mindful listening partner practices, one person reads a poem or talks about a problem, partner listens mindfully practicing presence and acceptance

acknowledged and accepted as it is” (Bishop et al., 2004, p. 232).

Mindfulness promotes self-regulation of attention and metacognitive awareness of one’s moment-to-moment experience. This enhanced attention and a nonjudgmental awareness (characterized by curiosity, openness, and acceptance) support emotional and cognitive flexibility, self-awareness, and self-regulation (Jimenez, Niles, & Park, 2010) with the goal of helping teachers be less reactive and reduce the automatic appraisals of student behavior that contribute to emotional exhaustion (Chang, 2009).

CARE introduces a series of mindful awareness practices, beginning with the basic practice of focusing on the breath and extending to activities that promote a mindful approach to daily activities such as standing, walking, being present in front of the classroom, listening to others, and so forth. Through practicing these activities, teachers learn to bring greater nonjudgmental awareness to their classroom organization and to

their interactions with students, parents, and colleagues.

Compassion Practices

To promote empathy and compassion, CARE introduces “caring practice” and “mindful listening.” Caring practice involves a guided reflection of “loving kindness” focused on generating feelings of care for self and others by mentally offering well-being, happiness, and peace (Hopkins, 2001). Research has demonstrated that regular practice of this activity produces increases in daily experiences of positive emotions and decreased illness and depressive symptoms (Fredrickson, Coffey, Pek, Cohn, & Finkel, 2008; Hofmann, Grossman, & Hinton, 2011). Mindful listening exercises are designed to promote the ability to simply listen to another without judgment. The practice involves noticing (without acting upon) emotional reactions such as urges to interrupt, offer advice, or judge while listening (Shapiro & Mariels,

2013). These exercises are designed to help teachers to listen more effectively to students and be more sensitive and responsive to their needs, especially during conflict when a teacher's calm, supportive presence can facilitate conflict resolution.

Focus of the Present Study

The present study involved a randomized controlled trial of CARE; results are reported here. This study represents the culmination of a 2-year project funded by the U.S. Department of Education, Institute of Educational Sciences (IES) Education Research Grants program under the project goal Development and Innovation. Following from funding requirements, an iterative development process involved a cycle of program development, implementation, observation, and revision (see Jennings, Snowberg, Coccia, & Greenberg [2011] for a first-year report on this project). In the first year, two pilot cycles were performed, resulting in the final program design tested here. Here we test the hypotheses that compared with controls, teachers who received CARE would show improvements in measures of general well-being (including reductions in depressive and daily physical symptoms), efficacy, burnout/time pressure, and mindfulness. We also hypothesized that teachers would find the program to be feasible, acceptable, socially valid, and beneficial.

Method

Sample

Fifty-three participants were recruited from urban and suburban public schools in two school districts in a small northeast U.S. metropolitan area. Attrition was low at 5.6% (one from control, two from intervention). Eighty-nine percent of participants were female ($n = 47$) and 11% were male ($n = 6$). Forty-seven participants identified as White, two as African American, and two as Hispanic, and one participant identified as being of a mixed racial background. One participant declined to provide race-related information. Participants' ages ranged from 22–60 years (mean age = 36 years). Seventy-two percent had a graduate degree ($n = 38$). Participants had been teaching

from 1 to 36 years ($M = 11.7$ years). Participating teachers were representative of the general population of teachers in the metropolitan area with regards to years of teaching ($M = 11.9$ years). However, the sample was more educated (area average is bachelor's degree only) and more female ($M = 73\%$) than the general population (Pennsylvania State Department of Education, 2013). No data regarding racial characteristics of the area population of teachers are available.

Participants' instructional contexts and training background were diverse. Thirty-three were regular education teachers, eight were in special education, six identified as specialists (e.g., speech-language pathology), and three noncore instructional educators (e.g., art education). A majority of participants (47%; $n = 25$) taught at the elementary level. The remaining teachers taught at the preschool ($n = 3$), middle ($n = 3$), or high school ($n = 6$) levels or in mixed grade settings ($n = 16$). Active consent was obtained in accordance with university Institutional Review Board procedures. No financial incentives were provided to participants.

Procedure

Participants were recruited from schools via flyers and group presentations during faculty meetings. After consent was provided, participants were matched on age, years of teaching experience, grade level, position, and school environment (urban and suburban); pairs were randomized to intervention or wait-list comparison condition.

The CARE program was presented to two cohorts of teachers. Each program was facilitated by two of the program's developers across five full-day sessions. The intervention began with a 2-day weekend session (12 hours) followed by a 1-day session 2 weeks later and a fourth day 2 weeks after the third session (4 weeks after the initial sessions). Approximately one month later, a 1-day booster session was presented. Between sessions, participants received one coaching phone call by program facilitators. The intervention was delivered to Cohort 1 between October 2010 and January 2011 and to Cohort 2 between January and April 2011 (see Table 2).

Table 2
CARE Program Schedule

Intervention group wave 1						
Fall 2010						Winter 2011
Oct. 23–24		Nov. 6		Nov. 20		Jan. 15
Session 1	Intercession	Session 2	Intercession	Session 3	Intercession	Booster session
2 continuous days (12 hours total)	2 weeks of individualized coaching by phone (one 20- to 30-minute call between sessions)	1 day (6 hours)	2 weeks of individualized coaching by phone (one 20- to 30-minute call between sessions)	1 day (6 hours)	Local group support activities	1 day (6 hours)
Intervention group wave 2						
Winter 2011						Spring 2011
Jan. 15–16		Jan. 29		Feb. 12		April 30
Session 1	Intercession	Session 2	Intercession	Session 3	Intercession	Booster session
2 continuous days (12 hours total)	2 weeks of individualized coaching by phone (one 20- to 30-minute call between sessions)	1 day (6 hours)	2 weeks of individualized coaching by phone (one 20- to 30-minute call between sessions)	1 day (6 hours)	Local group support activities	1 day (6 hours)

Each participant was assigned a facilitator/coach. The teacher and facilitator held coaching sessions by phone between CARE sessions. These calls lasted approximately 20 minutes and were intended to support teachers' development of an at home mindfulness practice and the application of CARE skills and concepts to their teaching. Facilitators asked participants about their use of practices, what they found helpful or not, and whether they had any questions or challenges for which they needed support.

Measures

Participants completed an online battery of self-report measures at pre and post to assess general well-being, efficacy, burnout/time pressure, and mindfulness. Participants in the CARE group also completed a postintervention evaluation of program acceptability.

General well-being. Four measures assessed teachers' general well-being.

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS assesses positive and negative affect. Participants were asked to rate how they "felt during the past few weeks" on 20 emotions (such as "hostile" and "enthusiastic") using a 5-point Likert-type scale (1 = *very little or not at all* to 5 = *extremely*). Coefficient alphas for the positive and negative affect subscales were 0.92 and 0.85, respectively.

Emotion Regulation Questionnaire (Gross & John, 2003). The ERQ is a 10-item assessment of two emotion regulation strategies: cognitive reappraisal and expressive suppression. Respondents reported on emotional experience ("what you feel like inside") and emotional expression ("how you show your emotions in the way you talk, gesture, or

behave”) on a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Coefficient alpha for the *reappraisal* subscale was 0.90 and *suppression* subscale was 0.67.

The Center for Epidemiologic Studies Depression Scale (CES-D-20; Radloff, 1977). On the CES-D, participants were asked to rate 20 depressive symptoms over the past week and then rank the frequency of these feelings using a Likert scale where 0 = *rarely (less than one day)* to 3 = *most of the time (5–7 days)*. The coefficient alpha for the CES-D was 0.87.

The Daily Physical Symptoms (DPS; Larsen & Kasimatis, 1997). The DPS is a physical symptom checklist containing 27 items. Participants were asked whether or not they experienced each particular symptom “today” and, if so, to rate the severity on a 1–10 scale, with 1 = *very mild* and 10 = *very severe*. Symptoms included pain such as headache and backache, gastrointestinal problems such as nausea and diarrhea, cold and flu symptoms such as cough and sore throat, and other symptoms such as eye- and ear-related symptoms. The coefficient alpha for the DPS was 0.77.

Efficacy.

Teachers’ Sense of Efficacy Questionnaire (TSES; Tschannen-Moran & Woolfolk Hoy, 2001). The TSES is a 24-item Likert measure of three dimensions of teaching efficacy: *efficacy for instructional strategies* (“How much can you use a variety of assessment strategies?”), *efficacy for classroom management* (“How well can you keep a few problem students from ruining an entire lesson?”), and *efficacy for student engagement* (“How much can you do to foster student creativity?”), and *total efficacy* score. Items asked teachers to indicate “How much they can do” in response to various classroom and instructional challenges. Items ranged from 1 = *nothing* to 9 = *a great deal*. Coefficient alphas were as follows: *efficacy for instructional strategies* = 0.89, *efficacy for classroom management* = 0.92, *efficacy for student engagement* = 0.88, and *total efficacy* = 0.95.

Burnout and time pressure. Two measures assessed burnout and time pressure.

Maslach Burnout Inventory (Educators’ Survey)(MBI; Maslach, Jackson, & Leiter, 1997). The MBI is a 22-item Likert measure designed to assess burnout syndrome in teach-

ers, as characterized by high levels of *emotional exhaustion* and *depersonalization* and low levels of *personal accomplishment*. Coefficient alphas for the *emotional exhaustion* subscale were 0.89; *depersonalization*, 0.70; and *personal accomplishment*, 0.79.

The Time Urgency Scale (TUS; Landy, Rastegary, Thayer, & Colvin, 1991). The TUS assesses the multidimensional construct of time pressure. The scale is composed of 33 Likert items; 24 are part of five subscales to measure *speech patterns* (five items such as “I talk more rapidly than most people”), *eating behavior* (five items such as “I eat rapidly, even when there is plenty of time”), *competitiveness* (six items such as “I go ‘all out’”), *task-related hurry* (three items such as “I often feel very pressed for time”), and *general hurry* (five items such as “I usually work fast”). The remaining nine items can be included in the mean to create a total scale score. Respondents are asked to indicate the extent to which various descriptors apply to them personally. Items ranged from 1 = *strongly disagree* to 5 = *strongly agree*. Coefficient alphas for the *speech patterns* scale were as follows: 0.72; *eating behavior*, 0.92; *competitiveness*, 0.70; *task-related hurry*, 0.84; and *general hurry*, 0.57.

Mindfulness.

The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The FFMQ is a 39-item Likert instrument with a total score and five subscales: *observing*, *describing*, *acting with awareness*, *nonjudgmental*, and *nonreactive*. Respondents are asked to indicate the extent to which various mindfulness-related statements are generally true for them. Items ranged from 1 = *never or rarely true* to 5 = *very often or always true*. Coefficient alphas for the total score was .63 and for the subscales: *observing* = .85; *describing* = .92; *acting with awareness* = .90; *nonjudgmental* = .88; and *nonreactive* = .80.

Program evaluation. The *CARE Acceptability Questionnaire* (CAQ) is a 10-item self-report Likert questionnaire that asked intervention participants to assess their overall program satisfaction, as well as specific aspects of the program (program content, facilitator skill, program length, setting/atmosphere, program design, communication received from facilitators and coaching calls; 1 = *highly unsatisfied* to 5 = *highly satisfied*), likeliness to recommend to a colleague (1 = *highly unlikely* to 5 = *highly*

likely), perceived effects on teaching effectiveness and stress (1 = *strongly disagree* to 5 = *strongly agree*), perceived effects on students' prosocial, on-task behavior and academic performance (1 = *much worse* to 5 = *much better*), overall quality, and perceived impact on job performance (1 = *much lower* to 5 = *much higher*) in comparison to other professional development programs.

Fidelity. The CARE program was delivered by two of the program's developers who manualized the program content in the form of procedures and scripts for each activity. For each session a Facilitator's Record Sheet was created to evaluate that session based upon the manualized scripts; both facilitators and a trained observer completed the sheet at the end of each session to evaluate the program fidelity. Because the facilitators were working directly from the materials they created, the program was delivered with a high degree of fidelity (100%).

Analyses

Prior to conducting analyses, data were inspected and no significant departures from assumptions were detected. Less than 5% of cases were missing data on any variable at pre or post. Because of this listwise deletion was used to address missing data. As individual teachers were randomly assigned to the intervention or comparison groups, and data were analyzed at this level, we utilized single-level analyses appropriate for a person-randomized (vs. cluster randomized) control trial. Prior to conducting analyses, a series of independent *t* tests revealed no significant differences between intervention and control groups on any baseline measures on any pretest measure. For all self-report measures, ANCOVAs were computed between the CARE intervention group and comparison group for each outcome, and the pretest scores served as a covariate. Effect sizes were calculated as Cohen's *d* (Cohen, 1988).

Results

Self-Report

Unadjusted pre-/postintervention mean comparisons for all outcomes are reported in Table 3. The results of the ANCOVAs follow and can be found in Tables 4–7.

Well-being. ANCOVAs controlling for baseline measures indicated significant effects on some aspects of well-being (see Table 4). Specifically, significant intervention effects were found on the reappraisal subscale of the ERQ, $F(1, 47) = 10.9, p = .002; d = .80$, and reports of Daily Physical Symptoms, $F(1, 47) = 10.2, p = .002; d = -.32$.

Efficacy. Significant and positive intervention effects were found for multiple indicators of teacher efficacy (see Table 5). Specifically, significant effects were found for the total score on the Teacher's Sense of Self-Efficacy measure: $F(1, 47) = 10.6, p = .002; d = .60$; efficacy in student engagement: $F(1, 47) = 10.3, p = .002; d = .56$; and sense of efficacy in instruction: $F(1, 47) = 11.6, p = .001; d = .59$. However, no significant intervention effects were found on the efficacy in classroom management subscale, $F(1, 47) = 2.3, p = .13; d = .24$.

Burnout/time-pressure. With regard to teacher burnout and sense of time pressure, significant intervention effects were found on the general hurry subscale of the Time Urgency Scale, $F(1, 47) = 5.4, p = .025; d = -.42$, and the personal accomplishment subscale of the MBI, $F(1, 47) = 3.9, p = .05; d = .40$. No significant effects were found for the remaining subscales (see Table 6).

Mindfulness. Significant intervention effects were found for the observing, $F(1, 47) = 9.8, p = .003; d = .69$, and nonreactive, $F(1, 47) = 8.4, p = .006; d = .73$, subscales of the FFMQ. Significant intervention effects were also found on the summary mindfulness score (average of all items), $F(1, 47) = 4.29, p = .044, d = .56$. No significant intervention effects were found for the other subscales of the FFMQ (see Table 7).

Program Evaluation

CARE acceptability questionnaire. CARE was well received by the teachers. A majority (87%) reported that they *strongly agreed* or *agreed* that this type of program should be integrated into preparation and in-service training. Teachers reported that CARE improved their self-awareness (96%) and well-being (92%). They also *strongly agreed* or *agreed* that as a result of CARE they were "better able to manage classroom behaviors effectively and compassionately" (77%) and "better able to establish and maintain supportive

Table 3
Unadjusted Postintervention Mean Comparison for all Outcomes

	Control group <i>M (SD)</i>		Intervention group <i>M (SD)</i>	
	Pre	Post	Pre	Post
General Well-Being-Related Outcomes				
PANAS Positive affect	3.35 (0.92)	3.26 (0.81)	3.44 (0.65)	3.51 (0.71)
PANAS Negative affect	2.23 (0.71)	2.27 (0.74)	2.05 (0.60)	1.94 (0.52)
ERQ—Reappraisal	4.37 (1.10)	4.45 (0.98)	4.61 (1.26)	5.36 (.82)
ERQ—Suppression	2.85 (1.07)	3.26 (1.06)	3.16 (1.32)	2.91 (1.50)
CES-Depression	14.61 (8.74)	17.82 (11.53)	11.56 (6.99)	11.30 (6.88)
Daily physical symptoms	24.89 (20.97)	30.37 (25.48)	20.20 (13.97)	13.13 (10.82)
Teacher Efficacy-Related Outcomes				
Total sense of self-efficacy	6.92 (1.12)	6.78 (1.04)	6.69 (1.09)	7.13 (1.05)
Instructional strategies	7.18 (1.14)	7.01 (1.07)	6.84 (1.15)	7.35 (1.06)
Classroom management	6.98 (1.28)	6.90 (1.23)	6.74 (1.32)	7.07 (1.34)
Student engagement	6.60 (1.28)	6.44 (1.18)	6.54 (1.11)	6.97 (1.08)
Teacher Burnout and Time Pressure-Related Outcomes				
Speech patterns	3.30 (0.75)	3.32 (0.76)	3.26 (0.78)	3.00 (0.70)
Eating behavior	2.96 (1.10)	3.07 (1.17)	3.25 (1.16)	3.05 (1.10)
Competitiveness	3.90 (0.66)	3.86 (0.57)	3.74 (0.48)	3.67 (0.65)
Task-related hurry	3.87 (0.79)	3.98 (0.73)	4.11 (0.72)	3.86 (0.61)
General hurry	3.57 (0.53)	3.62 (0.47)	3.59 (0.65)	3.38 (0.68)
Emotional exhaustion	3.36 (1.33)	3.49 (1.32)	3.30 (1.09)	3.43 (1.10)
Depersonalization	2.07 (1.38)	2.24 (1.34)	1.69 (1.06)	2.02 (1.30)
Personal accomplishment	4.63 (0.83)	4.53 (0.76)	4.54 (0.76)	4.76 (0.62)
Mindfulness-Related Outcomes				
Observing	3.08 (0.74)	3.13 (0.66)	2.88 (0.83)	3.55 (0.69)
Describing	3.74 (0.65)	3.67 (0.60)	3.44 (0.84)	3.65 (0.78)
Acting with awareness	3.11 (0.69)	3.17 (0.64)	3.49 (0.72)	3.35 (0.70)
Nonjudgmental	3.41 (0.75)	3.51 (0.85)	3.75 (0.75)	3.77 (0.59)
Nonreactive	2.89 (0.70)	2.82 (0.62)	2.91 (0.58)	3.25 (0.68)
Summary score	3.26 (0.47)	3.27 (0.44)	3.29 (0.52)	3.52 (0.43)

relationships” with the children they taught (83%). Finally, participants noticed improvements in students’ (*much better* or *better*) prosocial behavior (76%), on-task behavior (66%), and academic performance (57%).

Discussion

The results reported here suggest that CARE had significant positive effects on teachers’ general well-being, efficacy, burnout/time pressure, and mindfulness. With regard to measures of general well-being, CARE participants showed statistically significant improvements in the re-

Table 4
Covariance Adjusted Postintervention Mean Comparison of General Well-Being-Related Outcomes

	M-ctrl (<i>SD</i>)	M-CARE (<i>SD</i>)	<i>d</i>	<i>p</i>
PANAS Positive affect	3.31 (0.74)	3.46 (0.52)	.24	.356
PANAS Negative affect	2.23 (1.94)	1.99 (0.53)	-.16	.130
ERQ—Reappraisal	4.54 (0.98)	5.26 (0.82)	.80	.002
ERQ—Suppression	3.35 (1.06)	2.80 (1.50)	-.43	.076
CES-Depression	15.58 (11.53)	12.61 (6.89)	-.45	.154
Daily physical symptoms	20.61 (25.48)	14.16 (10.82)	-.32	.004

Note. Negative effect size scores indicate higher scores in the control group relative to intervention.

Table 5
Covariance-Adjusted Postintervention Mean Comparison of Teacher Efficacy-Related Outcomes

	M-ctrl (<i>SD</i>)	M-CARE (<i>SD</i>)	<i>d</i>	<i>p</i>
Total sense of self-efficacy	6.696 (1.04)	7.232 (1.05)	.60	.002
Efficacy instructional strategies	6.887 (1.07)	7.51 (1.06)	.59	.001
Efficacy in classroom management	6.83 (1.23)	7.14 (1.34)	.24	.133
Efficacy in student engagement	6.41(1.18)	7.05 (1.09)	.56	.002

Table 6
Covariance-Adjusted Postintervention Mean
Comparison of Teacher Burnout and Time
Pressure-Related Outcomes

	M-ctrl (<i>SD</i>)	M-CARE (<i>SD</i>)	<i>d</i>	<i>p</i>
Speech patterns	3.25 (0.76)	3.08 (0.70)	-.24	.115
Eating behavior	3.18 (1.17)	2.92 (1.10)	-.23	.098
Competitiveness	3.80 (0.57)	3.74 (0.65)	-.10	.536
Task-related hurry	4.02 (0.73)	3.80 (0.61)	-.32	.207
General hurry	3.62 (0.47)	3.38 (0.68)	-.42	.025
Emotional exhaustion	3.44 (1.33)	3.49 (1.10)	.04	.866
Depersonalization	2.10 (1.34)	2.18 (1.30)	.06	.754
Personal accomplishment	4.51 (0.76)	4.79 (0.62)	.40	.054

appraisal subscale of the ERQ and daily physical symptoms compared with controls.

The ability to reappraise a stressful situation plays an important role in successful self-regulation of emotion (Gross, 2002). The CARE program is designed to help teachers regulate their emotional reactivity in provocative situations by applying mindful awareness to emotional experience: noticing the physical sensations and cognitions associated with their reactions and when needed, taking a few deep breaths. This practice is designed to help teachers calm down, decenter, and reappraise provocative situations.

Chronic stress can erode physical health (McEwen, 2004) and the significant reduction in teachers' reports of daily physical symptoms suggests that the CARE program may help reduce stress, supporting teachers' resilience and preventing stress-related illnesses. Future research with a larger sample should provide an opportunity to test whether CARE's effects on physical symptoms are mediated by improvements on other variables.

With regard to teacher efficacy, CARE teachers showed improvement in the TSES total score, compared with controls. Significant intervention effects were also found on the instructional strategies and student engagement subscales of the TSES. Helping teachers better recognize and regulate their emotional reactivity may improve their efficacy by preventing the degradation to cognitive functioning that is provoked by the stress response (McEwen & Sapolsky, 1995). Although more research is required to fully examine the relationship be-

tween teachers' cognitive functioning, self-reported sense of efficacy, and emotion regulation, the results of this study are promising.

With regard to burnout and time pressure, significant intervention effects were found on the general hurry subscale of the TUS and the personal accomplishment subscale of the MBI. CARE may help teachers better manage their time. The mindfulness-based interventions reduce rumination (Jain et al., 2007). When teachers spent less time ruminating about their "to-do list" they may have more time to focus on those tasks.

The personal accomplishment subscale of the MBI is very similar to measures of efficacy (e.g., "I have accomplished many worthwhile things in this job") so it is not surprising that CARE demonstrated effects on this subscale. It is notable that the intervention did not demonstrate effects on emotional exhaustion or depersonalization. However, baseline levels of these two variables were relatively low possibly resulting in ceiling effects.

With regard to mindfulness, compared with controls, CARE teachers showed significant improvement on the observing and nonreacting subscales of the FFMQ. A large component of the CARE program involves learning mindful self-observation and self-regulation. The describing, acting with awareness, and nonjudging subscales showed no significant improvement. Although these dimensions of mindfulness are also included in the CARE program, improvements in these subscales may take more time to appear. Further research involving a follow-up collection period would be required to determine whether this is the case and whether the intervention effects found in this study are retained over a longer period of time.

Table 7
Covariance-Adjusted Postintervention Mean
Comparison of Mindfulness-Related Outcomes

	M-ctrl (<i>SD</i>)	M-CARE (<i>SD</i>)	<i>d</i>	<i>p</i>
Observing	3.12 (0.66)	3.58 (0.69)	.69	.003
Describing	3.56 (0.60)	3.78 (0.78)	.32	.156
Acting with awareness	3.30 (0.64)	3.21 (0.70)	-.13	.562
Nonjudgmental	3.59 (0.85)	3.68 (0.59)	.12	.605
Nonreactive	2.82 (0.62)	3.29 (0.66)	.73	.006
Summary score	3.27 (0.44)	3.52 (0.43)	.57	.044

Overall, participants reported high levels of satisfaction with the program. Results of the program satisfaction survey suggest that teachers found the program improved their relationships with their students, their classroom management, and their classroom climate. The results provide preliminary support for the Prosocial Classroom Model. Improvements in teachers' well-being, efficacy, burnout, and mindfulness (all related to teachers' SEC) were associated with teachers' reports of improvements in student and classroom outcomes.

Limitations

This study had several limitations. The sample size was relatively small and we relied on self-report to determine program effects. Future research should employ larger samples and examine the effects on classroom climate and student outcomes. Furthermore, as data were collected at pre- and postintervention only, further follow-ups would be required to assess its long-term effects. It is possible that some intervention effects may take time to appear while others may dissipate over time. Because no active control group was employed, it is possible that the results may have occurred simply from teachers receiving an intensive amount of attention and group support. Future research should control for this possibility by including an active control comparison condition that includes equivalent amounts of time and attention but does not include any active mindfulness-related components (e.g., nondirected teacher support group etc.).

Another limitation of the present study was that it did not assess CARE's effects on classroom and student outcomes. Additional research will be required to determine whether improvements in teacher outcomes also improve teachers' ability to develop and maintain a well-managed learning environment and provide optimal emotional support to their students. This will require a multisite randomized trial focused on testing the direct effects of the CARE program on teacher, classroom, and student outcomes. Such a trial may also examine whether CARE is especially effective for teachers, classrooms, and students at highest risk, and provide support for the Prosocial Classroom model through tests of mediation. In any case, it will be important for future research to show

effects on classroom and student outcomes to justify the time intensity of the program.

Implications for Educational Psychology and Policy

Teacher stress and burnout is a pervasive problem in education today. Unfortunately, few if any programs have addressed this issue. School psychologists are increasingly being called upon to provide support to teachers in the form of professional development and consultation on matters related to and or associated with teacher stress that impact performance. CARE is a promising manualized program that psychologists can use to address these issues. School psychologists are ideally suited to serve as implementation agents, given their knowledge in both the psychological and instructional dimensions of the classroom context. CARE can be deployed as a universal or targeted prevention strategy at the school or district level.

This research has implications for future educational policy and programs in at least three ways. First, CARE may reduce teacher stress and burnout, which may reduce school district costs in terms of personnel health care costs, absenteeism, and early resignation. Second, CARE emphasizes the teacher's own development which requires further attention in educational policy and research. Third, CARE may help teachers establish supportive relationships with students at risk of school failure, thereby promoting school attachment and school climate. Further studies that involve assessment of student outcomes will be required to test this hypothesis. Finally, CARE may improve classroom climate which may result in improvements in students' academic achievement, thus, supporting initiatives and policy aimed at these outcomes, especially those seeking to narrow the "achievement gap."

In summary, this study indicates the potential of a mindfulness professional development program to reduce emotion reactivity and promote well-being. Although further research is required to obtain a more complete understanding of CARE's effects, these results suggest it is a promising intervention to support teachers, especially those working in challenging settings. Thus, CARE may fill an important professional development need that has been long overlooked by the education research community; to

support teachers' social and emotional competence and well-being as means of promoting resilience and improving their performance and their students' performance.

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