Journal of School Psychology 51 (2013) 557–569

Contents lists available at ScienceDirect

Journal of School Psychology

journal homepage: www.elsevier.com/locate/jschpsyc

Do emotional support and classroom organization earlier in the year set the stage for higher quality instruction?☆

Timothy W. Curby[a,*], Sara E. Rimm-Kaufman[b], Tashia Abry[c]

[a] George Mason University, USA
[b] University of Virginia, USA
[c] Arizona State University, USA

ARTICLE INFO

Article history:
Received 1 May 2012
Received in revised form 14 June 2013
Accepted 27 June 2013

Keywords:
Teacher–child interactions
Elementary
Bidirectional
Longitudinal
Cross-lagged autoregressive model

ABSTRACT

Many teachers believe that providing greater emotional and organizational supports in the beginning of the year strengthens their ability to teach effectively as the year progresses. Some interventions, such as the *Responsive Classroom* (*RC*) approach, explicitly embed this sequence into professional development efforts. We tested the hypothesis that earlier emotional and organizational supports set the stage for improved instruction later in the year in a sample of third- and fourth-grade teachers enrolled in a randomized controlled trial of the *RC* approach. Further, we examined the extent to which the model generalized for teachers using varying levels of *RC* practices as well as whether or not teachers were in the intervention or control groups. Teachers' emotional, organizational, and instructional interactions were observed using the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008) on five occasions throughout the year. Results indicated a reciprocal relation between emotional and instructional supports. Specifically, higher levels of emotional support earlier in the year predicted higher instructional support later in the year. Also, higher levels of instructional support earlier in the year predicted higher emotional support later in the year. Classroom organization was not found to have longitudinal associations with the other domains across a year. This pattern was robust when controlling for the use of RC practices as well as across intervention and control groups. Further, teachers' use of *RC* practices predicted higher emotional support and classroom organization throughout the year, suggesting the malleability of this teacher characteristic. Discussion highlights the connection between teachers' emotional and instructional supports and how the use of *RC* practices improves teachers' emotionally supportive interactions with students.

1. Introduction

Recommendations for elementary school teachers often advance the premise that establishing emotionally supportive and well-organized classroom environments early in the year contributes to improved instructional quality later in the year (Wong & Wong, 2004). Some professional development interventions, such as the *Responsive Classroom*® (*RC*) approach, explicitly prepare teachers to start the year by bolstering classroom social supports. The main premise behind efforts to improve emotional and

☆ Authors' notes: The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education through grant R305B090002 to the University of Virginia and through grant R305A070063 to the third author by the Institute of Education Sciences, U.S. Department of Education. The opinions expressed are those of the authors and do not represent views of the U.S. Department of Education. We also gratefully acknowledge the assistance of Julie Thomas, Michelle Ko, Gretchen Bukowick, Jennifer Williams, Abby Moncrief, and the administrators, teachers, and children in our collaborating district.
* Corresponding author at: George Mason University, Department of Psychology, 4400 University Dr., MS 3F5, Fairfax, VA 22030, USA. Tel.: +1 703 993 2457.
E-mail address: tcurby@gmu.edu (T.W. Curby).
ACTION EDITOR: Andy Roach.

0022-4405/$ – see front matter © 2013 Society for the Study of School Psychology. Published by Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.jsp.2013.06.001

organizational supports earlier in the year is to provide a foundation for later improved academic instruction and, ultimately, improved student achievement (Denton & Kriete, 2000). Although this belief is widely held, there is surprisingly little empirical evidence examining this premise. The present study examines the extent to which earlier emotional and organizational supports are effective pathways to higher instructional support over the course of a school year. Furthermore, we examine how the use of *RC* practices may change associations between emotional, organizational, and instructional supports and relate to their overall levels. Finally, we test the extent to which random assignment to receive training in the *RC* approach affects any of the associations found.

1.1. Social supports in the classroom

Classrooms are complex social settings characterized by social interactions between teachers and students and among students. These interactions serve as socializing agents for children (Tardy, 1985), whereby children experience varying levels of emotional, organizational, and instructional supports in different classrooms or within a classroom over time. Consistent with developmental theory (Bronfenbrenner & Morris, 2006), empirical work over the past decade has supported the view that these supports, in the form of interactions between teachers and students, are important in student learning (Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008; Rudasill, Gallagher, & White, 2010).

Theoretical (Hamre & Pianta, 2007) and empirical (Hamre, Pianta, Mashburn, & Downer, 2007) work suggests that these classroom social supports can be divided into three domains: emotional, organizational, and instructional. Emotional support encompasses the aspects of the classroom climate that help students to be known and cared for as individuals. In classrooms with high levels of emotional support, teachers express warm feelings for children, offer nurturance for children's emotional and academic needs, and allow for developmentally appropriate levels of autonomy and responsibility in the classroom (Pianta, La Paro, & Hamre, 2008; Wentzel, 2002). Higher quality emotional support has been linked to important student outcomes, including better social competence, higher levels of school satisfaction, fewer problem behaviors, better student attitudes toward mathematics, and higher engagement (Baker, 1999; de Lourdes Mata, Monteiro, & Peixoto, 2012; Hughes, 2011; Mashburn et al., 2008; NICHD Early Child Care Research Network [ECCRN], 2003). Additionally, teacher–student relationships, an aspect of emotional support, have been positively related to student outcomes such as effortful engagement and achievement (Hughes & Kwok, 2007; Hughes, Luo, Kwok, & Loyd, 2008) and negatively related to internalizing and externalizing behaviors (O'Connor, Dearing, & Collins, 2011). Thus, the emotional climate of the classroom has a broad base of research supporting its salience in children's learning environments.

Classroom organization refers to the social supports that help children navigate classroom activities efficiently and, ultimately, help the classroom function as smoothly as possible. In other words, teachers with high-quality organizational supports use proactive discipline strategies, minimize down time, and use a variety of modalities during instruction (Pianta, La Paro et al., 2008; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Importantly, work in kindergarten classrooms has shown that classrooms characterized as having higher levels of classroom organization have students that are more engaged in their work—a key element of student learning (Ponitz, Rimm-Kaufman, Grimm, & Curby, 2009). Classic work on classroom management compared fourth-grade teachers whose students were high or low scoring on math achievement tests (Good & Grouws, 1977). Analyses showed that teachers with higher achieving students used better classroom management approaches characterized by less time spent on discipline and transition and more back and forth communication between the teachers and students (Good & Grouws, 1977).

Instructional support refers to teachers' efforts to provide students with opportunities to develop higher-order thinking skills, learn and practice language, and engage in dialog about learning with the teacher (Pianta, La Paro et al., 2008). Hallmarks of teachers that offer high-quality instructional support include the use of lessons and activities that promote analysis and reasoning, a focus on expanding learning and understanding (rather than correctness) through ongoing discussion and feedback, and the inclusion of rich vocabulary and opportunities for students to use their developing language skills. Children in classrooms with higher instructional quality appear more engaged in their schoolwork and learn more academically in kindergarten and elementary (Curby et al., 2009; Dolezal, Welsh, Pressley, & Vincent, 2003; Hamre & Pianta, 2005).

1.2. Temporal relations among domains of classroom social supports

The predominant research on the quality of classroom emotional, organizational, and instructional supports focuses on the overall or average quality. However, the temporal arrangement of these interactions may be important as well (Seidman, Tseng, & Weisner, 2006). Supports in one domain early in the school year may set the stage for the prevalence of other types of supports later in the year (cf. Curby, Grimm, & Pianta, 2010). That is, the presence of one type of behavior may make specific subsequent behaviors more likely (Bakeman & Gottman, 1997). As for the quality of classroom supports, it has been hypothesized that in elementary school it is particularly important to establish healthy emotional and organizational climates earlier in the year (Bohn, Roehrig, & Pressley, 2004, Denton & Kriete, 2000; Wong & Wong, 2004). These higher levels of emotional support and classroom organization may enable teachers to be able to provide higher quality instruction later in the year.

1.2.1. Theoretical framework

The idea that children need to feel emotionally supported before they are ready to learn is largely theoretical but has received some empirical support. The idea itself stems from humanistic psychology, namely Maslow's hierarchy of needs, an approach that

is often incorporated into preservice instruction. This hierarchy states that lower-order needs (e.g., safety, belonging, and respect of others) must be addressed before higher-order needs (e.g., problem solving, creativity, and achievement) can be achieved (Maslow, 1943). From this vantage point, before students are willing to fully engage with a teacher and with classroom lessons and materials, the students need to feel that they are known and accepted (Wentzel, 2004). This finding is consistent with the view that social and instructional climates play complementary roles in children's learning (Durlak, Weissberg, Taylor, & Dymnicki, 2011).

The present study is also informed by theoretical work that focuses on the interactions of a person with their environment (including other people) as a mechanism for development. Bronfenbrenner and Morris (2006) noted that the reciprocal interactions between a person and the environment are the proximal processes that drive development. Sameroff (2000) referred to the interactions between a person and their environment as "transactional development" (p. 37), emphasizing the point that development is inseparable from the interactions that drive it. Importantly, the nature of the teachers' interactions support or constrain children's development. Although, child outcomes are not examined specifically in the present study, we are interested in these interactions because they drive children's development.

1.2.2. Empirical evidence

Research on the teacher–student relationship offers empirical support for the notion that starting the year with more emotional support will lead to more instructional support. Students have better academic outcomes when they have relationships with teachers that are more close and less conflictual (Birch & Ladd, 1997; Hamre & Pianta, 2001; Ladd, Birch, & Buhs, 1999; Murray, 2009; Pianta, Steinberg, & Rollins, 1995).

The notion that starting the year in elementary school with higher quality classroom organization has later benefits has been tested empirically. Brophy (1983) emphasized the preparation of the classroom as a critical element of an effective learning environment. Work from the process–product literature (e.g., Emmer, Evertson, & Anderson, 1980) shows that teachers who started the year with better classroom management had better behavioral and achievement outcomes at mid-year. More recent findings support the findings of this early work. For example, Bohn et al. (2004) conducted qualitative observations of kindergarten through second-grade teachers, comparing teachers who were more effective at producing student engagement and literacy progress with those who were less effective. They found that the most effective teachers focused on establishing rules and procedures at the very beginning of the school year. Cameron, Connor, and Morrison (2005) expanded upon this work by showing that first-grade classrooms with higher levels of classroom organization earlier in the year had children who spent less time transitioning and more time in child-managed activities later in the year.

1.3. The Responsive Classroom approach

The present study takes place in the context of a randomized controlled trial of the *RC* approach. The *RC* approach is a social and emotional learning intervention providing professional development for elementary teachers in the use of specific classroom practices designed to promote children's academic and social growth (Northeast Foundation for Children [NEFC], 2007, 2008). Seven guiding principles (e.g., the social curriculum is as important as the academic curriculum and how children learn is as important as what they learn) lay the groundwork for 10 practices teachers implement in the classroom (e.g., Morning Meeting). *RC* practices are designed with the goal of developing caring classrooms that support children's social and academic development. Thus, conceptually, many *RC* practices reinforce the importance of the emotional and organizational supports provided in the classroom. For instance, *RC* teachers are trained in the use of Morning Meeting—a gathering time with greetings, sharing, and short games—to enhance the emotional connection between and among teachers and students. Another *RC* practice, Interactive Modeling, instructs students in the behavioral expectations for classroom routines through the use of demonstration, practice, and feedback. A third practice, Academic Choice, offers students opportunities to exercise developmentally appropriate levels of autonomy by allowing students to plan, enact, and reflect upon academic work of their choice as well as work with the teacher to develop classroom rules that support student-derived social and academic goals. In combination, these *RC* practices and others target the classroom emotional and organizational supports available to children.

Existing research on the *RC* approach suggests that the use of the approach may contribute positively to teachers' and children's school experiences. In a quasi-experimental study, teachers trained in the *RC* approach were rated higher in both emotional and instructional supports. Specifically, *RC* teachers spent less time teaching basic skills and more time teaching analysis and inference than counterparts who were not using *RC* practices (Skibbe, Decker, & Rimm-Kaufman, 2006). Extending the work to student achievement showed that, after controlling for poverty and previous years' test scores, the *RC* approach contributed better reading and pro-social skills among first through fourth grade students (Rimm-Kaufman, Fan, Chiu, & You, 2007). Further work based on a randomized controlled trial examining the efficacy of the *RC* approach on classroom-level outcomes points to the way in which the *RC* approach contributes to change in classroom quality. Specifically, findings suggest the presence of an indirect effect between training in the *RC* approach and the quality of classroom interactions via teachers' use of the *RC* practices (Abry, Rimm-Kaufman, Larsen, & Brewer, 2013). That is, the *RC* approach contributes to improvements in classroom processes when teachers use more *RC* practices (but not as a function of *RC* training alone).

The indirect effect of *RC* training shifts our attention away from solely examining the impact of training in the *RC* approach toward understanding the use of practices across both intervention and control teachers. At times, *RC* practices may be present in the control condition because of the diffusion of the intervention or because typical teaching practices can resemble *RC* practices because of common theoretical origins (Cordray & Pion, 2006; Rimm-Kaufman, Curby, Abry, Thomas, & Ko, under review). In the

intervention condition the measurement of *RC* practices is a measure of fidelity to the *RC* intervention; in the control condition, what we are measuring is the use of *RC* practices even though they may not be known to the teachers as such. For the sake of brevity, we adopt the term *fidelity of implementation* to refer to the use of *RC* Practices—whether present in the intervention or control condition (Century, Rudnick, & Freeman, 2010; Durlak & DuPre, 2008).

1.4. The present study

School practitioners (including principals, teachers, and school psychologists) often seek interventions that involve more leverage for less effort. Identifying points in time during the school year when changes in the teachers' behaviors can have benefits for children holds promise as one such intervention. Thus, we seek to examine the temporal arrangement of teachers' interactions with elementary children over the course of the school year. Although existing findings suggest the potential of the *RC* approach to increase the capacity of teachers to foster students' social and academic growth, to date, there has been no work testing the key issue of whether higher levels of either emotional support or classroom organization earlier in the year contribute to improved academic instruction later in the year. This research question tests a central proposition of the *RC* approach. As described in *The First Six Weeks of School* (Denton & Kriete, 2000), a book published by NEFC, "We must convey, from the very first day of school, the important message that we will tackle challenging material and do high quality work in our classroom. But we also must convey that we will tackle this material and do this high quality work in an atmosphere of support and collaboration" (p. 6).

Additionally, it is of interest to understand the extent to which the *RC* approach influences the levels of such classroom social supports and the longitudinal associations among domains of classroom supports. We examine the contribution of the *RC* approach in two ways. The first considers the extent to which teachers are using practices consistent with the *RC* approach. This approach takes into account the fact that some teachers who were trained in *RC* may not use many of its practices and that some control teachers who were not trained in *RC* may still use practices consistent with the program. This distinction has been important to consider in this dataset as the use of practices has been more strongly related to outcomes than simple random assignment (Abry et al., 2013; Rimm-Kaufman, Larsen et al., under review). The second examines whether the nature of the associations between emotional support, classroom organization, and instructional support varies as a function of random assignment to a treatment or control conditions. The present study focuses on the third and fourth grades because little is known about the teachers' use of practices associated with children's social and emotional learning in these upper elementary grades.

The study's research questions are as follows:

1. Are there longitudinal associations among emotional support, classroom organization, and instructional support over the course of the school year? Existing theory and research lead us to hypothesize positive associations between earlier emotional support and classroom organization with later instructional support. However, we thought that there may be other un-hypothesized associations and therefore we explored all combinations as part of our model building.
2. Do the associations among domains of classroom supports vary as a function of teachers' fidelity of implementation of *RC* practices? We do not have any specific hypotheses about whether the pattern of associations will differ among low and high fidelity teachers but based on existing findings (Abry et al., 2013), we expect that teachers who use more *RC* practices will be rated as having higher levels of emotional support and classroom organization. We do not expect the use of *RC* practices to predict instructional support because it is not a direct target of the intervention.
3. Do the associations among domains of classroom supports vary as a function of random assignment to treatment or control conditions? This question considers whether the associations that are found generalize to control and treatment schools alike. We do not have any specific hypotheses about whether the pattern of associations will be different among treatment and control teachers; however, we do expect more use of *RC* practices in the *RC* treatment group.

2. Method

2.1. Participants

The present study uses data from a larger randomized controlled trial testing the efficacy of training teachers in the *RC* approach (Abry et al., 2013; Rimm-Kaufman, Larsen et al., under review). Twenty-four schools from a single district in the mid-Atlantic were selected because of their interest in adopting the *RC* approach as part of a larger district-based initiative. Schools were randomized into intervention ($n = 13$) or waitlist control conditions ($n = 11$), stratified on the percentage of students eligible for free and reduced lunch and racial/ethnic minority composition. Independent samples *t*-tests revealed that treatment and control schools did not differ on these two variables upon randomization, $ps > .05$.

For the present inquiry, third and fourth-grade teachers from all 24 schools were invited to participate, resulting in a 95% response rate ($n = 240$). Observational data were available on 181 teachers, which constitute the analytic sample for the present study with observations of third grade teachers happening in 2008–2009 school year and fourth grade teachers being observed in the 2009–2010 academic year. The teacher sample was approximately 90% women, 86% Caucasian, 5% African American, 3% Hispanic/Latino, and 2% Asian. On average, teachers were 39 years old with 10 years of teaching experience. Nearly 65% held a master's degree. Teachers in experimental and control conditions did not differ on these demographic variables, with the

exception of race/ethnicity; the experimental group had a significantly higher percentage of teachers from racial/ethnic minority groups, *ps* < .05.

2.2. Measures

2.2.1. Classroom Assessment Scoring System

The quality of teachers' interactions with students was observed using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro et al., 2008). Ten dimensions were rated on a 7-point Likert scale (1 = *low* to 7 = *high*). These ten dimensions were subsequently aggregated into three empirically validated domains (Hamre et al., 2007) at each time point (cf. Curby et al., 2010). The Emotional Support domain consists of four dimensions ($\alpha_4 = .78$ for the current study): Positive Climate, Negative Climate (reversed), Teacher Sensitivity, and Regard for Student Perspectives. Emotional Support assesses the extent to which positive affect and relationships are evident, the teacher responds to students' needs, and the teacher incorporates students' ideas and interests into the instruction. The Classroom Organization domain ($\alpha_3 = .67$ for the current study) consists of three dimensions: Behavior Management, Productivity, and Instructional Learning Formats. Classroom Organization encompasses teachers' use of proactive discipline strategies, and student engagement, and the general productivity of the class. Although the alpha value for this domain is lower than the other domains, it is not out of line with other observational research of classroom organization (Luckner & Pianta, 2011; Malmberg & Hagger, 2009). The Instructional Support domain ($\alpha_3 = .86$ for the current study) consists of three dimensions: Concept Development, Quality Feedback, and Language Modeling. Instructional Support captures teachers' use of individualized feedback, promotion of higher order thinking skills, and use of language in the classroom.

Initial interrater reliability was evaluated after a 2-day workshop. Raters coded a minimum of 10 videos and were required to rate each of the 10 dimensions within one scale point of a master code 80% of the time. To promote high interrater reliability, semi-monthly calibration meetings were held by certified CLASS trainers in which observers independently coded a classroom video observation chosen at random. The group arrived at consensus, creating master codes for these videos, which were used as the final scores for that video. Observers' independent scores from these videos (not including the agreed upon master codes) were used to calculate intraclass correlations (ICCs). ICCs compare the variance of the measured items to the total variance, which includes rater variance. High ICCs in this case tells us that little variance was due to the rater. Across the six intervals during the 18-month coding period, ICCs ranged from .73 to .85. As an additional check, certified CLASS trainers double coded two randomly selected video observations from each observer during each of the six intervals. Percent agreement within one scale point between the CLASS trainer and observer was consistently above 80% across intervals.

Two 15-minute segments were sampled from each 60-minute observation. For morning observations, the two segments were composed of minutes 15 through 30 and minutes 30 through 45. For mathematics observations, the two segments were composed of minutes 1 (the start of the mathematics lesson) through 15 and minutes 30 through 45. These segments were individually coded by the trained observers blind to treatment condition and with no formal training in the *RC* approach to avoid observers inadvertently biasing their ratings of quality. Domain scores for a segment were created by averaging across the corresponding dimensions. The domain scores for the two segments from one day were then averaged to create aggregated domain scores for that observation day, which served as the indicators for emotional support, classroom organization, and instructional support at each of the five time points.

2.2.2. Classroom Practices Observational Measure

Teachers' use of *RC* practices (i.e., fidelity of implementation) was observed using the Classroom Practices Observational Measure (CPOM; Abry, Brewer, Nathanson, Sawyer, & Rimm-Kaufman, 2010). CPOM items measured *RC* constructs without using *RC* terminology so that items could be coded in control classrooms. The 16-item version ($\alpha_{16} = .88$ for the current study) was used during morning observations, whereas a shortened 10-item version ($\alpha_{10} = .65$ for the current study), excluding items pertaining to the Morning Meeting, was administered during mathematics observations. Experimental and control classrooms were live-coded in the classroom by observers who were not blind to treatment condition, but that had no formal exposure to the *RC* approach to avoid inadvertent bias of fidelity ratings. Based on the full 60-minute observations, observers assigned a score of 1 (*not at all characteristic*) to 3 (*very characteristic*) for each of the items. Scores within each observation time point were aggregated to form a composite that measured teachers' observed use of *RC* practices.

Observers completing the CPOM were trained extensively, and scored, at minimum, an 80% exact match with a set of eight master-coded video observations prior to conducting their first live observation. Ongoing interrater reliability was assessed during monthly calibration meetings in which coders independently scored a videotaped observation chosen at random. Observers derived consensus scores, which served as the ratings used in the analyses; observers' independent ratings (not including the agreed upon master codes) were used to calculate ICCs, which ranged from .74 to .88 across the 18-month coding period.

2.3. Procedure and design

The present study recruited teachers in the fall of 2007 from the 24 schools in the study. Over 95% of teachers agreed to participate and received $100 for being observed and completing surveys. Teachers in the intervention condition received training in the *RC* approach, administered by the developers, NEFC. In the summer of 2008, third and fourth-grade teachers received training in *RC* 1—a weeklong institute focusing on five of the 10 *RC* practices: Morning Meeting, Rule Creation, Interactive

Modeling, Teacher Language, and Logical Consequences. These teachers were also supported with approximately three in-person consultations with NEFC coaches during the school year as well as supplemental books and newsletters pertaining to the *RC* approach. Fourth-grade teachers subsequently received *RC* 2, an additional weeklong training in the summer of 2009 which built on the *RC* 1 training and also included information on the additional *RC* practices of Academic Choice, Classroom Organization, Guided Discovery, Collaborative Problem Solving, and Working with Families. These teachers were also provided with coaching consultations throughout the school year. Third-grade teachers were observed in their first year of implementation of the *RC* approach (after *RC* 1), and fourth-grade teachers were observed in their second year of implementation (after *RC* 2).

Teachers were videotaped for 1 h at each of five points spread throughout the year. There were three observation windows: fall, winter, and spring. Teachers were observed in each window during a mathematics lesson. During two of the three windows, teachers were also observed during morning instruction on a separate occasion than the mathematics observation. Observations did not systematically have a pattern of morning observations happening first or second within each observation window. Mathematics lessons were observed for the entire duration of the lesson. Morning observations lasted for 1 h.

2.4. Data analysis

Descriptive statistics were calculated to understand the basic nature of the data. Our research questions were assessed using a structural equation modeling (SEM) framework in AMOS 19.0 software (Arbuckle, 2010). SEM is a flexible framework useful in the present study because it allowed for a given variable to be modeled with multiple simultaneous associations, such as a variable being predicted by the previous time point as well as predicting the next time point. SEM also can account for missing data, in this case, by using Full-Information Maximum Likelihood (Allison, 2003).

Our first research question was evaluated by building a cross-lagged autoregressive model. The autoregressive aspect refers to the fact that each variable is predicted by the same variable at the previous time point (with these unstandardized relations constrained to be equal over time). For example, the analysis examines whether emotional support at observation 1 predicts emotional support at observation 2. It is important to note that path constraints are made on the unstandardized loadings. Thus, unstandardized results will report only one loading for multiple paths. However, it is common for standardized loadings to be unequal. In order to get the same standardized values one would have to constrain the variances of the variables in the model. In the models used for the present study, there were three domains of variables (emotional support, classroom organization, and instructional support) measured at five time points (observation 1, observation 2, etc.). Initial values and error terms at a given time point were allowed to correlate across domains. This model was the unconditional model and served as the initial basis for comparison.

The cross-lagged aspect of the models refers to the fact that subsequent models added in associations (one set at a time) between domains of quality across time. For example, emotional support at observations 1, 2, 3, and 4 was used to predict instructional support at observations 2, 3, 4, and 5, respectively (with each set of cross lags constrained to be equal over time). These cross lags allowed us to test if one domain of quality was a leading indicator (or set the stage) for another domain of quality. In a series of models, all possible cross lags between pairs of domains were tested to see if any of these models fit the data better than the unconditional model, which specified no cross-lagged associations. In testing these single cross lags, we are able to answer our first research question examining the extent to which emotional support and classroom organization were associated with later instructional support. However, it was possible that models with multiple cross-lagged associations provided a better fit to the data than the single cross-lag models. Thus, combinations of paths from significantly better fitting models were tested to see if models with two sets of paths fit better relative to the best-fitting model with one set of paths. This continuation of model building allowed us to explore additional longitudinal associations among domains of classroom support throughout the school year.

Consistent with the use of SEM analyses, fit indices were evaluated to assess the degree to which each model fits the data. In comparing models, we identified the best fitting model in relative terms. That is, models with one set of cross-lags were statistically compared to the original unconditional model (which had no cross-lags) via chi-square change tests. Specifically, we compared the fit of pairs of nested models by looking for statistically significant changes in chi-square values relative to the change in degrees of freedom. A statistically significant chi-squared drop when a cross-lag was added to the model suggested that there may be directional associations between the two sets of variables being tested. A similar process was followed whereby models with two sets of cross-lags were compared to the best-fitting model with one set of cross-lags. A significant chi-square change test statistic indicated that the model with specified paths among domains of classroom social supports provided a better fit to the data compared to the unconditional model. For these tests, a two-tailed alpha level was set at .05. Although they do not provide actual tests of improved fit, model fit was also evaluated using other fit indices including: the comparative fit index (CFI), the Tucker–Lewis Index (TLI), and the root mean square error of approximation (RMSEA). Values higher than .90 on the CFI and TLI indicate satisfactory model fit, whereas values less than .08 on the RMSEA indicate satisfactory fit (Bentler, 1990; Bentler & Bonett, 1980; Browne & Cudeck, 1993).

The answer to the second research question—whether teachers' use of *RC* practices influenced the pattern of the longitudinal associations among the domains of classroom supports—CPOM scores were entered as time-varying covariates at each of the five time points. The entire model was rebuilt and cross-lags could then be compared across models. Furthermore, we expected statistically significant path coefficients from CPOM to Emotional Support and Classroom Organization based on our hypotheses that teachers using more *RC* practices would rate higher in these domains of classroom support (Abry et al., 2013).

To answer our last research question—whether associations vary as a function of random assignment to treatment versus control condition—we ran a multigroup analysis. In a multigroup analysis, the model is estimated for treatment and control groups with increasing numbers of constraints put on the model (e.g., constraining path coefficients to be the same for treatment and control). The chi-square difference test was used to determine the degree to which the constrained version of the model fits worse than the unconstrained version of the model.

3. Results

Descriptive statistics are provided in Table 1 for the study variables. The number of teachers with data for any given variable is noted and the number of teachers with observational data ranged from a high of 179 to a low of 156. These missing data were accounted for in the SEM analyses using Full Information Maximum Likelihood estimation.

3.1. Longitudinal associations over the year

3.1.1. Uncontrolled model

The first step in evaluating our questions was to build an unconditional model without controlling for the use of *RC* practices. This model included the autoregressive aspects of the variables, and interdomain, within-time correlations between the domains of variables. This unconditional model served as the basis of comparison for the cross-lagged models (χ^2 of 225.49, $df = 96$, CFI = .85, TLI = .81, RMSEA = .08). A series of cross-lagged models were run and evaluated to see which model best represented the data using chi-square change tests. Chi-squared change tests suggested that cross-lags from instructional support to emotional support and vice versa best represented the data (χ^2 of 196.95, $df = 94$, CFI = .88, TLI = .85, RMSEA = .07). Although, this model provided some indication that the bidirectional associations best represented the data, the model fit indices suggested that covariates may have needed to be added to better account for the data.

3.1.2. Controlled model

Ultimately, research questions 1 and 2 were answered by building controlled cross-lagged autoregressive models. The controlled models include fidelity of implementation (i.e., use of *RC* practices) as a time-varying covariate on each CLASS domain (constrained to have equal unstandardized path loadings over time). The unconditional (i.e., no cross lags) model had a χ^2 of 301.85 with 168 degrees of freedom and served as the basis of comparison for the cross-lagged models. The autoregressive component of the model suggested that classroom organization ($b = .25, \beta s = .23$ to $.28, p < .001$) and emotional support ($b = .26$, $\beta s = .26$ to $.28, p < .001$) were the most stable, but instructional support was less stable ($b = .19, \beta s = .19$ to $.21, p < .001$) across the five observations. These relatively low stability estimates are likely due to the varying morning and mathematics observations. Relatively high interdomain within-time correlations were evident ($rs = .43$ to $.56, p < .001$).

Table 1
Descriptive statistics for all study variables.

	Variable	*M*	*SD*	*n*
1	CLASS: Emotional Support T1	5.19	0.55	179
2	CLASS: Emotional Support T2	5.09	0.57	176
3	CLASS: Emotional Support T3	5.03	0.53	162
4	CLASS: Emotional Support T4	5.16	0.55	160
5	CLASS: Emotional Support T5	5.12	0.52	157
6	CLASS: Classroom Organization T1	5.89	0.54	179
7	CLASS: Classroom Organization T2	5.83	0.49	176
8	CLASS: Classroom Organization T3	5.74	0.52	162
9	CLASS: Classroom Organization T4	5.80	0.54	160
10	CLASS: Classroom Organization T5	5.84	0.52	157
11	CLASS: Instructional Support T1	2.75	0.77	179
12	CLASS: Instructional Support T2	2.88	0.76	176
13	CLASS: Instructional Support T3	2.87	0.72	162
14	CLASS: Instructional Support T4	2.74	0.69	160
15	CLASS: Instructional Support T5	2.83	0.70	157
16	At RC Intervention School	0.55	0.50	233
17	CPOM: Fidelity to RC T1	1.63	0.40	179
18	CPOM: Fidelity to RC T2	1.62	0.40	174
19	CPOM: Fidelity to RC T3	1.57	0.38	162
20	CPOM: Fidelity to RC T4	1.63	0.44	160
21	CPOM: Fidelity to RC T5	1.55	0.33	156

Note. CLASS = Classroom Assessment Scoring System (Pianta, La Paro et al., 2008), CPOM = Classroom Practices Observational Measure (Abry et al., 2010), and RC = *Responsive Classroom* approach.

Table 2
Model comparisons using chi-squared change tests and model fit statistics.

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	CFI	TLI	RMSEA
Unconditional	301.8	168	–	–		.89	.86	.06
Emo. Sup. → Ins. Sup.[a]	281.9	167	19.9	1	<.001	.90	.88	.05
Emo. Sup. → Class. Org.[a]	301.5	167	0.3	1	.58	.89	.86	.06
Ins. Sup. → Class. Org.[a]	301.5	167	0.3	1	.58	.89	.86	.06
Ins. Sup. → Emo. Sup[a]	289.1	167	12.7	1	<.001	.90	.87	.06
Class. Org. → Emo. Sup.[a]	299.3	167	2.5	1	.11	.89	.86	.06
Class. Org. → Ins. Sup.[a]	301.4	167	0.4	1	.53	.89	.86	.06
*Emo. Sup. ↔ Ins. Sup.[b]	272.6	166	9.3	1	<.01	.91	.89	.05

Note. Emo. Sup. = CLASS: Emotional Support; Ins. Sup. = CLASS: Instructional Support; and Class. Org. = Classroom Organization. CFI = comparative fit index; TLI = Tucker–Lewis index; and RMSEA = root mean square error of approximation. * = Best fitting model.
[a] Compared to unconditional model.
[b] Compared to Emo. Sup. → Ins. Sup. Model.

As with the uncontrolled model, a series of cross-lagged models were run and a final, best-fitting model was produced. These models, along with the model fit information for each, are presented in Table 2. As with the final uncontrolled model, the final controlled model included cross-lags from emotional support to instructional support and from instructional support to emotional support. Notably, this model provided the same answer for which cross-lags, if any, best represented the data. Both the CFI and the RMSEA suggested that this model provided a satisfactory fit to the data (CFI = .91, TLI = .89, RMSEA = .05) although the TLI value was just under the .90 threshold. This final model (Fig. 1) outperformed all other cross-lagged models and suggested that accounting for the bidirectional statistical effects between emotional support and instructional support is the best representation of the data. Notably, our final model did not include any significant paths to or from classroom organization.

In evaluating the path coefficients from the final controlled model, higher levels of emotional support were significantly related to higher levels of instructional support at the next observation ($b = .21$, $\beta s = .15$ to .16, $p < .001$). Although small, this cross-lagged effect was nearly as large as the autoregressive component for instructional support and suggested, in line with our hypotheses, that establishing emotionally supportive environments earlier in the year can contribute to improved instructional quality later in the year. Likewise, higher levels of instructional support were related to higher levels of emotional support at the next observation ($b = .08$, $\beta s = .11$, $p = .002$). This was the smaller of the two cross-lagged effects and was unhypothesized.

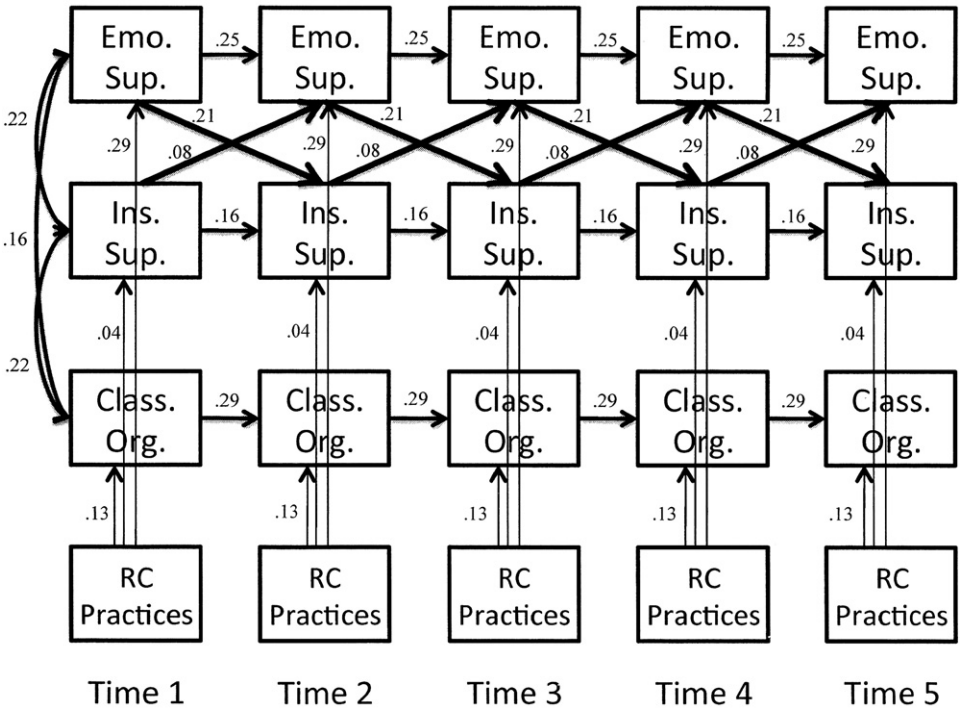

Fig. 1. Final cross-lagged autoregressive model showing unstandardized estimates. *Note*. Emo. Sup. = CLASS: Emotional Support; Ins. Sup. = CLASS: Instructional Support; and Class. Org. = CLASS: Classroom Organization. Error variances and remaining correlations are omitted from the diagram.

The CPOM predictor, which measured the use of *RC* practices, was included in the model as a time-varying covariate. CPOM was found to be a significant predictor of emotional support ($b = .29$, $\beta s = .20$ to $.24$, $p < .001$) and classroom organization ($b = .13$, $\beta s = .08$ to $.11$, $p = .003$), but not instructional support ($b = .04$, $\beta s = .02$ to $.03$, $p = .52$), extending the findings of Abry et al. (2013), which linked teachers' fidelity of implementation of *RC* practices to teachers' classroom supports aggregated across emotional, organizational, and instructional domains.

3.2. Longitudinal associations in intervention versus control conditions

In a multigroup analysis testing for differences between the *RC* and Control groups, we found that structural weights were not statistically different for *RC* and non-*RC* teachers ($\Delta\chi^2 = 14.0$, $\Delta df = 8$, $p = .08$.). However, mean levels of fidelity (measured using the CPOM measure) were found to be different across these two groups ($\Delta\chi^2 = 127.5$, $\Delta df = 5$, $p < .001$), whereby *RC* teachers had higher observed use of *RC* practices at every time point. Thus, consistent with previous work (Abry et al., 2013), our model suggested that *RC* training was effective at raising CPOM levels. In turn, CPOM scores are indirectly related to later levels of instructional support through their association with higher levels of emotional support.

3.3. Other models

We conducted additional analyses to evaluate alternate explanations for findings. One model tested whether or not the nesting of teachers in schools affected results. Using TYPE = COMPLEX analyses in MPlus software, we arrived at the same final model with the same unstandardized path estimates. Thus, for parsimony sake, we report the model that does not take the nesting of teachers in schools into account.

Other models were tested by adding in covariates to the unconditional model, undergoing the same model-building processes as described in the Data analysis section, and then identifying differences between the final models with and without covariates. Alternate models controlled for the amount of time between observations and whether or not the observation was a mathematics observation or a morning observation. In all cases, the final model's paths between domains (i.e., emotional support and instructional support) were the same; thus, we present the most parsimonious model.

To rule out grade-level effects, we also conducted a multigroup analysis to test whether the paths in our model fit well for both the third- and fourth-grade teachers with one and two rounds of training, respectively. In this analysis, we compared model fit for the two groups with and without imposed constraints. Structural paths were constrained to have the same weights across groups, yielding a nonsignificant difference, $\Delta\chi^2 = 9.4$, $\Delta df = 5$, $p = .09$, suggesting model generalizability across the third- and fourth-grade teachers.

4. Discussion

Several main findings emerged from the present study. The answer to our first research question revealed that emotionally supportive classroom climates earlier in the year predicted higher levels of instructional support later in the year, as hypothesized. In turn, instructionally supportive classroom environments earlier in the year were associated with higher levels of emotional support as the year progressed, which was not hypothesized. Counter to our hypotheses, we did not find evidence for greater classroom organization earlier in the year facilitating higher levels of instructional support later in the year. Answers to our remaining research questions revealed that associations between domains did not differ when controlling for the use of *RC* practices and that teachers assigned randomly to the *RC* approach (versus control) condition showed increased use of *RC* practices, resulting in higher levels of emotional and organizational supports within classrooms, but that the associations among domains of classroom supports did not differ according to treatment assignment.

The findings affirm one commonly held teacher intuition that creating a safe and supportive environment earlier in the year yields later instructional benefits (Denton & Kriete, 2000; Wong & Wong, 2004) and suggests the merit of the *RC* approach in fostering teachers' development of those skills. National policy discussions place great emphasis on efforts to improve teacher quality. Implicit in these discussions is the notion that prioritizing children's social and emotional needs may detract from children's academic growth. The current work contributes to our understanding of the complementary nature of classroom social and instructional climates (Durlak et al., 2011) and provides implications for practitioners working to identify interventions that may improve teaching practices in these domains. Consistent with Maslow's hierarchy of needs as applied to teacher education, the results of the present study support the notion that providing for the emotional needs of students allows for subsequent support of instructional needs (Maslow, 1943). Further, the findings suggest that establishing supportive relationships early in the year may be a point of leverage for improving later instruction.

4.1. Longitudinal associations over the year

4.1.1. Early emotional supportiveness leading to later instructional support

On average, teachers had high mean levels of emotional support, which indicated that children were generally experiencing an emotional climate that offered much in the way of social supports for learning (Tardy, 1985). These high levels suggested that teachers in these classrooms were emphasizing the emotional aspect of classroom interactions by having activities that promoted a healthy social–emotional climate, actively facilitating positive relationships with students, or both. These findings support

existing work pointing to the importance of nurturance, connecting to students personally and individually, and being sensitive to their individual learning needs for improving academic learning (Baker, 1999; Hughes, 2011; O'Connor et al., 2011; Pianta, La Paro et al., 2008; Wentzel, 2002). One measured aspect of emotional support, teacher sensitivity, specifically includes the criteria that teachers are aware of and responsive to individual learning needs of students. Over the course of the year, sensitive teachers may be better able to provide feedback to students—an aspect of instructional support. Furthermore, emotional support includes the idea that teachers know students personally (as measured in positive climate). Knowing students better may improve instruction by allowing the teacher to provide examples more relevant and directly applicable to students' lives—an aspect of instructional support as measured in the current study. For example, if a teacher observes a group of students playing a particular game at lunch, the teacher may use that game in an example in mathematics instruction. Furthermore, knowing students better allows the teacher to better tailor material to pre-existing knowledge.

4.1.2. Earlier instructional support predicting later emotional support

Findings demonstrated that earlier instructional support predicted subsequent emotional support. Thus, not only was greater emotional support associated with more instructional support later in the year, but also, greater instructional support was associated with greater emotional support later in the year. This finding suggests that closer relationships between teachers and students were forged by offering higher levels of instructional support. One plausible explanation is that as students engaged in learning with higher levels of instructional support, students may experience more satisfaction and come to respect the teacher more. As a result, these students may draw closer to their teacher and peers on an emotional level. In classrooms with higher levels of instructional support, learning may be more enjoyable because of the deeper thinking involved and the more-relevant examples. In this way, students may be more open and inviting to further relationship building by the teacher.

The cyclical relation between emotional and instructional supports exemplifies the importance of understanding sequences that occur in classrooms over minutes, hours, days, and years (Seidman et al., 2006). Teachers and children are interacting with each other over time. Teachers are directing academic and social–emotional supports toward children and children are responding. The relations are bidirectional and reflect the interactive nature of the developmental process. Notably, the relations that exist during a day are different than those that exist over the course of the year. In another study examining longitudinal associations between these domains of support, emotional support and classroom organization were found to form a positive feedback loop with one another over the course of a day in preschool classrooms (Curby et al., 2010). It appears that over short periods (within a single day), higher levels of emotional support are conducive to providing higher levels of classroom organization—at least in preschool. Over the longer term (a school year), the present study found that higher levels of emotional support are conducive to providing higher levels of instructional support. Thus, emotional support may be a conduit to better short-term organization and long-term instruction, as well as being associated with better outcomes for children.

4.1.3. Classroom organization

One counterintuitive finding merits attention. Higher levels of classroom organization earlier in the year were not associated with more instructional support later in the year, as hypothesized. Thus, the findings indicated no spillover effect from earlier classroom organization to later instructional support. We offer two potential explanations for this non-significant result. The first explanation has to do with the concurrent associations between classroom organization and instructional supports. Specifically, teachers who offered higher levels of instructional support showed higher levels of classroom organization concurrently. Thus, the results should not be interpreted to mean that classroom organization and instructional support were not related. Rather, the findings from the present study suggest that classroom organization was not a pathway to later instructional support. This suggestion is important to note considering research has shown that classroom organization is associated with better student outcomes (e.g., Emmer et al., 1980; Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009).

The second explanation for the lack of association between earlier classroom organization and later instructional support pertains to the measurement of the classroom organization construct. In *The First Six Weeks of School* (Denton & Kriete, 2000), teachers are encouraged to model and practice the routines and rules of school. For instance, the teacher may demonstrate use of the hands-up signal to quiet the class and the teacher and students may practice this signal several times so that children learn it. Likewise, teachers may work with the students to establish a set of rules for Morning Meeting or for use of materials. Such behaviors exhibited early in the year, observed using the CLASS system, may appear to be high in the dimension of behavior management, but fairly low in the dimensions of productivity and instructional learning formats. In other words, aggregating scores up to the domain level could be masking changes in the levels of (and the relations between) aspects of classroom organization and aspects of instructional support. This area should be investigated in future research.

4.2. Contribution of the RC Approach

Several findings provided useful information about how the *RC* approach relates to classroom practices. Our two initial hypotheses, (1) that initial emotional support would predict later instructional support (a hypothesis confirmed in our analyses) and (2) that initial classroom organization would predict later instructional support (a hypothesis that was not confirmed), set the stage for asking the following: To what extent does teachers' use of the *RC* practices influence the pattern of associations among domains of classroom supports? Analyses showed that the use of more *RC* practices did not change the pattern of longitudinal associations, but using more *RC* practices was found to be related to higher levels of emotional support and classroom organization throughout the year. Examining the *RC* practices specifically provided insight into how *RC* practices related to higher

levels of emotional support and classroom organization. For example, the Morning Meeting represents one *RC* practice. Teachers and children gather as a class, greet each other by name, engage in an activity designed to be fun, and exchange news. By experiencing Morning Meeting every day, children learn and practice social skills (e.g., turn-taking, listening, and cooperating) that can be applied to academic learning throughout the day and later in the year (such as working in a group). Further, Morning Meeting is designed to create a sense of community within the classroom, essentially creating a feeling of security for children so they are better able to take the academic risks required for learning.

The fact that more use of *RC* practices was related to higher levels of emotional support is notable—regardless of the association between emotional support and instructional support—given that higher levels of emotional support have been found to be related to better social outcomes (such as social competence, engagement, and satisfaction) and better academic outcomes (Baker, 1999; Connor, Son, Hindman, & Morrison, 2005; Hughes, 2011; NICHD ECCRN, 2003; Pianta, Belsky et al., 2008). Thus, this study suggests that children may experience positive outcomes directly associated with higher levels of emotional support as well as the benefits that they may incur from the indirect effect that emotional support has on outcomes via instructional support.

4.3. Comparable longitudinal associations for intervention and control conditions

Although the use of *RC* practices appeared to raise levels of emotional support and classroom organization, the bidirectional relations between emotional support and instructional support over the course of the year remained intransigent regardless of whether teachers have been randomized into the intervention or control conditions. In other words, the associations between emotional support and instructional support existed across control and intervention teachers (and across grades as well). The fact that there were no differences in the associations between *RC* and control groups does not mean that the intervention was ineffective. Teachers who were trained in the *RC* approach used more *RC* practices than those who had not been trained (Abry et al., 2013; Rimm-Kaufman, Larsen et al., under review). Further, teachers who used more *RC* practices had higher levels of emotional support (which in turn related to higher subsequent levels of instructional support). Findings point to the importance of fidelity of implementation, operationalized here as observed use of *RC* practices. That is, training alone did not directly improve the social supports offered to children but rather training was associated with using more *RC* practices that were associated with the higher levels of emotional support. The finding raises useful points about understanding fidelity of implementation and the generalizability of findings. In terms of the use of practices, *RC* gives teachers strategies to apply developmentally-oriented, child-centered strategies for classroom life. Evidence for the relation between *RC* training and higher levels of emotional support (and subsequent higher levels of instructional support) assumes that teachers use the practices with fidelity. There is a growing body of work suggesting that intervention uptake varies among implementers (Century et al., 2010; Durlak & DuPre, 2008). Such findings are consistent with other research on social and emotional learning interventions that suggest the importance of fidelity of implementation for producing change in classrooms and students (Durlak & DuPre, 2008). The present work adds to research on fidelity of implementation and turns future research attention toward salient aspects of the intervention that may be responsible for the differing practices among teachers.

4.4. Limitations and future inquiry

Although this study was a part of a randomized control trial, the longitudinal analyses themselves are correlational in nature. Thus, we cannot make a causal inference to state that higher levels of emotional support are causing higher levels of later instructional support or vice versa. Rather, having higher levels of emotional support was associated with having higher levels of instructional support at the next observation and vice versa.

It is worth noting that Classroom Organization from the CLASS as well as the 10-item version of RC Practices from the CPOM measure both had reliability values less than .70. Although Classroom Organization has been used in other studies with similar internal consistencies (Luckner & Pianta, 2011; Malmberg & Hagger, 2009), it is possible that the low reliability attenuated its relation to later Instructional Support. Pertaining to the short version of the CPOM, the low alpha value of the 10 RC practices (e.g., Rule Creation and Academic Choice) suggests that teachers may use more of some *RC* practices and fewer of others, apart from Morning Meeting. However, this concern is tempered by the fact that the same pattern of findings emerged without CPOM in the model.

As of yet, we can only say that these findings apply to this sample of teachers, which included largely well-educated, experienced teachers from a large suburban district. We do not know the extent to which these findings would generalize to samples that include less well-educated, less experienced teachers, or teachers in smaller more rural districts. Evidence of external validity is provided by the fact that the findings generalized across various conditions (controlling for the use of *RC* practices or not, morning and mathematics observations, and grade level). Questions about generalizability raise issues to be addressed in future research. Although there is an established and growing body of research on social–emotional learning in elementary school classrooms, the work in middle and high school classrooms remains sparse. Examining the extent to which the patterns described here are present or absent in older grade classrooms represents an important next step.

4.5. Conclusion

The present study sheds light on our understanding of the sequential processes that play out in classrooms. This sequence seems to involve a bidirectional interplay of emotional and instructional supports. Understanding the sequences that play out in a

classroom is at the heart of understanding development. Children's development occurs as a function of their interactions with their environment (Bronfenbrenner & Morris, 2006). The nature of those interactions—the extent to which they are warm and responsive versus cool and detached or organized and routinized versus chaotic—is likely to produce successfully, healthy, progressive growth. Thus, the present study helps us to understand classroom processes that shape students' experiences over the course of a year.

Stakeholders in children's lives—including teachers, parents, school psychologists and school leaders—strive to ensure that children will grow, learn, and contribute effectively to our society. Legislation designed to foster these goals typically presses academic objectives rather than social and emotional goals. This reality is perhaps best embodied by the current focus on improving the quality of classroom teachers (U.S. Department of Education Office of Postsecondary Education, 2011), with a particular focus on teachers' ability to provide instruction effectively. Rather than simply focusing on instructional supports, the present study suggests that efforts to improve the social and emotional climates of classrooms will not only result in better classroom climates, but also may set the stage for better instruction. The *RC* approach represents one widely used teacher professional development tool designed to improve the classroom climate and foster higher quality instruction. Thus, although there may be other ways to improve classroom social supports (e.g., Kemeny et al., 2012; Ransford, Greenberg, Domitrovich, Small, & Jacobson, 2009) the present study suggests that school psychologists may consider training teachers in the *RC* approach as a way to increase teachers' use of *RC* practices to promote both social and academic learning.

Furthermore, consideration should be given as to the best ways to support teachers early in the year. The present study suggests that efforts by school administrators to promote teachers' emotional support earlier in the year will also indirectly support teachers' instruction as the year goes on. Using more *RC* practices was associated with higher levels of emotional support (at all time points) and, therefore, school psychologists and administrators should consider how to best help teachers implement more *RC* practices right from the start of the academic year. One potential way would be to reduce administrative burdens or provide positive social supports earlier in the year to help teachers focus on providing an emotionally supportive environment (Ransford et al., 2009). In so doing, children, teachers, and administrators may reap benefits from more emotionally- and instructionally-supportive classrooms.

References

Abry, T., Brewer, A., Nathanson, L., Sawyer, B., & Rimm-Kaufman, S. E. (2010). *Classroom Practices Observation Measure.* University of Virginia (Unpublished measure).

Abry, T., Rimm-Kaufman, S. E., Larsen, R. A., & Brewer, A. J. (2013). The influence of fidelity of implementation on teacher–student interaction quality in the context of a randomized controlled trial of the *Responsive Classroom* approach. *Journal of School Psychology*. http://dx.doi.org/10.1016/j.jsp.2013.03.001.

Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology*, *112*, 545–557.

Arbuckle, J. L. (2010). *IBM SPSS® Amos™ 19 user's guide.* Crawfordville, FL: Amos Development Corporation.

Bakeman, R., & Gottman, J. (1997). *Observing interaction: An introduction to sequential analysis.* Cambridge, MA: Cambridge University Press.

Baker, J. A. (1999). Teacher–student interaction in urban at-risk classrooms: Differential behavior, relationship quality, and student satisfaction with school. *The Elementary School Journal*, *100*, 57–70. http://dx.doi.org/10.1086/461943.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588–606.

Birch, S. H., & Ladd, G. W. (1997). The teacher–child relationship and children's early school adjustment. *Journal of School Psychology*, *35*, 61–79. http://dx.doi.org/10.1016/S0022-4405(96)00029-5.

Bohn, C. B., Roehrig, A. D., & Pressley, M. (2004). The first days of school in the classrooms of two more effective and four less effective primary-grade teachers. *The Elementary School Journal*, *104*, 269–287 (doi:0013-5984/2004/10404-0001$05.00).

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.) *Handbook of child psychology: Vol. 1 Theoretical models of human development* (5th ed., pp. 994-1028). New York, NY: Wiley.

Brophy, J. (1983). Classroom organization and management. *The Elementary School Journal*, *83*, 264–285. http://dx.doi.org/10.1086/461318.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.

Cameron, C. E., Connor, C. M., & Morrison, F. J. (2005). Effects of variation in teacher organization on classroom functioning. *Journal of School Psychology*, *43*, 61–85. http://dx.doi.org/10.1016/j.jsp.2004.12.002.

Century, J., Rudnick, M., & Freeman, C. (2010). A framework for measuring fidelity of implementation: A foundation for shared language and accumulation of knowledge. *American Journal of Evaluation*, *31*, 199–218. http://dx.doi.org/10.1177/1098214010366173.

Connor, C. M., Son, S., Hindman, A. H., & Morrison, F. J. (2005). Teacher qualifications, classroom practices, family characteristics, and preschool experience: Complex effects on first graders' vocabulary and early reading outcomes. *Journal of School Psychology*, *43*, 343–375. http://dx.doi.org/10.1016/j.jsp.2005.06.001.

Cordray, D. S., & Pion, G. M. (2006). Treatment strength and integrity: Models and methods. In R. R. Bootzin, & P. E. McKnight (Eds.), *Strengthening research methodology: Psychological measurement and evaluation* (pp. 103–124). Washington, DC: American Psychological Association.

Curby, T. W., Grimm, K. J., & Pianta, R. C. (2010). Stability and change in early childhood classroom interactions during the first two hours of a day. *Early Childhood Research Quarterly*, *25*, 373–384. http://dx.doi.org/10.1016/j.ecresq.2010.02.004.

Curby, T. W., LoCasale-Crouch, J., Konold, T. R., Pianta, R. C., Howes, C., Burchinal, M., et al. (2009). The relations of observed pre-k classroom quality profiles to children's academic achievement and social competence. *Early Education and Development*, *20*, 346–372. http://dx.doi.org/10.1080/10409280802581284.

de Lourdes Mata, M., Monteiro, V., & Peixoto, F. (2012). *Attitudes towards mathematics: Effects of individual, motivational, and social support factors.* Child Development Research (Downloaded March 12, 2013 from: http://www.hindawi.com/journals/cdr/2012/876028/doi:10.1155/2012/876028).

Denton, P., & Kriete, R. (2000). *The first six weeks of school.* Turner Falls, MA: Northeast Foundation for Children.

Dolezal, S. E., Welsh, L. M., Pressley, M., & Vincent, M. M. (2003). How nine third-grade teachers motivate student academic engagement. *The Elementary School Journal*, *103*, 239–267. http://dx.doi.org/10.1086/499725.

Durlak, J., & DuPre, E. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, *41*, 327–350. http://dx.doi.org/10.1007/s10464-008-9165-0.

Durlak, J. A., Weissberg, R. P., Taylor, R. D., & Dymnicki, A. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*, 405–432. http://dx.doi.org/10.1111/j.1467-8624.2010.01564.x.

Emmer, E., Evertson, C., & Anderson, L. (1980). Effective classroom management at the beginning of the school year. *The Elementary School Journal*, *80*, 219–231. http://dx.doi.org/10.1086/461192.

Good, T., & Grouws, D. (1977). Teaching effects: A process-product study in fourth-grade mathematics classrooms. *Journal of Teacher Education*, *28*, 49–54. http://dx.doi.org/10.1177/002248717702800310.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, *72*, 625–638. http://dx.doi.org/10.1111/1467-8624.00301.
Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first grade classroom make a difference for children at risk of school failure? *Child Development*, *76*, 949–967. http://dx.doi.org/10.1111/j.1467-8624.2005.00889.x.
Hamre, B. K., & Pianta, R. C. (2007). Learning opportunities in preschool and early elementary classrooms. In R. C. Pianta, M. J. Cox, & K. Snow (Eds.), *School readiness and the transition to kindergarten* (pp. 49–84). Baltimore, MD: Brookes Publishing.
Hamre, B. K., Pianta, R. C., Mashburn, A., & Downer, J. (2007). Building a science of classrooms: Application of the CLASS framework in over 4,000 U.S. early childhood and elementary classrooms. Retrieved on March 13, 2013 from the Foundation for Child Development: http://fcd-us.org/resources/building-science-classrooms-application-class-framework-over-4000-us-early-childhood-and-e
Hughes, J. N. (2011). Longitudinal effects of teacher and student perceptions of teacher–student relationship qualities on academic adjustment. *The Elementary School Journal*, *112*, 38–60. http://dx.doi.org/10.1086/660686.
Hughes, J., & Kwok, O. (2007). Influence of student–teacher and parent–teacher relationships on lower achieving readers' engagement and achievement in the primary grades. *Journal of Educational Psychology*, *99*, 39–51. http://dx.doi.org/10.1037/0022-0663.99.1.39.
Hughes, J. N., Luo, W., Kwok, O., & Loyd, L. K. (2008). Teacher–student support, effortful engagement, and achievement: A 3-year longitudinal study. *Journal of Educational Psychology*, *100*, 1–14. http://dx.doi.org/10.1037/0022-0663.100.1.1.
Kemeny, M. E., Foltz, C., Cavanagh, J. F., Giese-Davis, J., Jennings, P. A., Rosenberg, E. L., et al. (2012). Contemplative/emotion training reduces negative emotional behavior and promotes prosocial responses. *Emotion*, *12*, 338–350. http://dx.doi.org/10.1037/a0026118.
Ladd, G. W., Birch, S. H., & Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development*, *70*, 1373–1400. http://dx.doi.org/10.1111/1467-8624.00101.
Luckner, A. E., & Pianta, R. C. (2011). Teacher–student interactions in fifth grade classrooms: Relations with children's peer behavior. *Journal of Applied Developmental Psychology*, *32*, 257–266. http://dx.doi.org/10.1016/j.appdev.2011.02.010.
Malmberg, L., & Hagger, H. (2009). Changes in student teachers' agency beliefs during a teacher education year, and relationships with observed classroom quality, and day-to-day experiences. *The British Journal of Educational Psychology*, *79*, 677–694. http://dx.doi.org/10.1348/000709909X454814.
Mashburn, A. J., Pianta, R., Hamre, B. K., Downer, J. T., Barbarin, O., Bryant, D., et al. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language and social skills. *Child Development*, *79*, 732–749. http://dx.doi.org/10.1111/j.1467-8624.2008.01154.x.
Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*, 370–396. http://dx.doi.org/10.1037/h0054346.
Murray, C. (2009). Parent and teacher relationships as predictors of school engagement and functioning among low-income urban youth. *Journal of Early Adolescence*, *29*, 375–404. http://dx.doi.org/10.1177/0272431608322940.
National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN] (2003). Social functioning in first grade: Prediction from home, child care and concurrent school experience. *Child Development*, *74*, 1639–1662. http://dx.doi.org/10.1046/j.1467-8624.2003.00629.x.
Northeast Foundation for Children (2007). *Responsive classroom: Level I workbook.* Turner Falls, MA: Author.
Northeast Foundation for Children (2008). *Responsive classroom: Level II workbook.* Turner Falls, MA: Author.
O'Connor, E. E., Dearing, E., & Collins, B. A. (2011). Teacher–child relationship and behavior problem trajectories in elementary school. *American Educational Research Journal*, *48*, 120–162. http://dx.doi.org/10.3102/0002831210365008.
Pianta, R. C., Belsky, J., Vandergrift, N., Houts, R., & Morrison, F. J. (2008a). Classroom effects on children's achievement trajectories in elementary school. *American Educational Research Journal*, *45*, 365–397. http://dx.doi.org/10.3102/0002831207308230.
Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008b). *Classroom Assessment Scoring System (CLASS) K-3 version.* Baltimore: Brookes Publishing Co.
Pianta, R. C., Steinberg, M. S., & Rollins, K. B. (1995). The first two years of school: Teacher–child relationships and deflections in children's classroom adjustment. *Development and Psychopathology*, *7*, 295–312. http://dx.doi.org/10.1017/S0954579400006519.
Ponitz, C. C., Rimm-Kaufman, S. E., Grimm, K. J., & Curby, T. W. (2009). Kindergarten classroom quality, behavioral engagement, and reading achievement. *School Psychology Review*, *38*, 102–120. http://dx.doi.org/10.1037/a0016647.
Ransford, C. R., Greenberg, M. T., Domitrovich, C. E., Small, M., & Jacobson, L. (2009). The role of teachers' psychological experiences and perceptions of curriculum supports on the implementation of a social and emotional learning curriculum. *School Psychology Review*, *38*, 510–532.
Rimm-Kaufman, S. E., Curby, T. W., Abry, T., Thomas, J., & Ko, M. (2013). *Do specific teaching practices from the Responsive Classroom approach predict the quality of teacher–student interactions?* (under review).
Rimm-Kaufman, S. E., Curby, T. W., Grimm, K., Nathanson, L., & Brock, L. L. (2009). The contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology*, *45*, 958–972. http://dx.doi.org/10.1037/a0015861.
Rimm-Kaufman, S. E., Fan, X., Chiu, Y. I., & You, W. (2007). The contribution of the *Responsive Classroom* approach on children's academic achievement: Results from a three year longitudinal study. *Journal of School Psychology*, *45*, 401–421. http://dx.doi.org/10.1016/j.jsp.2006.10.003.
Rimm-Kaufman, S. E., Larsen, R., Baroody, A., Curby, T. W., Ko, M., Thomas, J., et al. (2013). *Efficacy of the Responsive Classroom approach: Results from a three year, longitudinal randomized control trial.* (under review).
Rudasill, K. M., Gallagher, K. C., & White, J. M. (2010). Temperamental attention and activity, classroom emotional support, and academic achievement in third grade. *Journal of School Psychology*, *48*, 113–134. http://dx.doi.org/10.1016/j.jsp.2009.11.002.
Sameroff, A. J. (2000). Dialectical processes in developmental psychopathology. In A. J. Sameroff, M. L. Lewis, & S. M. Miller (Eds.), *Handbook of developmental psychopathology* (pp. 23–40) (2nd ed.). New York, NY: Kluwer Academic/Plenum Publishers (Vol.).
Seidman, E., Tseng, V., & Weisner, T. S. (2006). Social setting theory and measurement. *Report and resource guide 2004–2005*. New York: William T. Grant Foundation.
Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children*, *31*, 351–380. http://dx.doi.org/10.1353/etc.0.0007.
Skibbe, L., Decker, L., & Rimm-Kaufman, S. (2006). The contribution of the Responsive Classroom approach to classroom quality and teaching practices. *Poster session presented at the Institute for Education Sciences Research Conference, Washington, DC*.
Tardy, C. H. (1985). Social support measurement. *American Journal of Community Psychology*, *13*, 187–202. http://dx.doi.org/10.1007/BF00905728.
U.S. Department of Education Office of Postsecondary Education (2011). Preparing and credentialing the nation's teachers: The secretary's eighth report on teacher quality based on data provided for 2008, 2009 and 2010. Retrieved March 13, 2013 from http://www2.ed.gov/about/reports/annual/teachprep/2011-title2report.pdf
Wentzel, K. (2002). Are effective teachers like good parents? Teaching styles and student adjustment in early adolescence. *Child Development*, *73*, 287–301. http://dx.doi.org/10.1111/1467-8624.00406.
Wentzel, K. (2004). Understanding classroom competence: The role of social-motivational and self-processes. In R. V. Kail (Ed.), *Advances in child development and behavior, Vol. 32*. (pp. 213–241). San Diego, CA: Elsevier.
Wong, H. K., & Wong, R. T. (2004). *The first days of school: How to be an effective teacher.* Mountain View, CA: Harry K. Wong Publications, Inc.