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Engagement in Training as a Mechanism to Understanding Fidelity of Implementation of the *Responsive Classroom* Approach

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Abstract Fidelity of implementation of classroom interventions varies greatly, a reality that is concerning because higher fidelity of implementation relates to greater effectiveness of the intervention. We analyzed 126 fourth and fifth grade teachers from the treatment group of a randomized controlled trial of the *Responsive Classroom*® (*RC*) approach. Prior to training in the intervention, we assessed factors that had the potential to represent a teacher's readiness to implement with fidelity. These included teachers' observed emotional support, teacher-rated use of intervention practices, teacher-rated self-efficacy, teacher-rated collective responsibility, education level, and years of experience, and they were not directly related to observed fidelity of implementation 2 years later. Further analyses indicated, however, that *RC* trainers' ratings of teachers' engagement in the initial weeklong *RC* training mediated the relation between initial observed emotional support and later observed fidelity of implementation. We discuss these findings as a way to advance understanding of teachers' readiness to implement new interventions with fidelity.

Keywords Fidelity of implementation · Engagement · Emotional support

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Achieving high fidelity of implementation (FOI) of classroom interventions is a challenge, and researchers have suggested attuning training as one way to address this problem (Pieri et al. 2013). To attune coaching to specific teacher factors, however, coaches must know which teacher factors forecast FOI. In other words, by gathering information about teachers' readiness to implement with fidelity before they begin to learn intervention strategies, supports could be tailored based on the needs of each teacher, and this may increase the likelihood that the intervention would be implemented as intended (Peterson 2013; Wanless et al. in press). The present study investigates the relation between initial teacher readiness and FOI of the *Responsive Classroom*® (*RC*) approach (NEFC 2007).

Shifting toward new practices requires teachers to dispense current practices and ease into new teaching approaches. In essence, this shift is a process of human change. Often, change, even "good change," is accompanied by feelings of confusion, loss, conflict, and incompetence (Evans 2001). One of the challenges of intervention coaching, therefore, is to acknowledge and manage the difficulty of teacher change while also producing shifts in beliefs and practices. Intervention coaches aim to support this difficult process in the early stages of working with a teacher. Our analyses examine the link between teachers' readiness and future FOI and begin to unpack the black box of coaching as a mechanism in this process. In this study, teachers were first exposed to learning *RC* practices during an initial 1-week training, which was led by "trainers" who subsequently

worked as "coaches" for teachers in the following years of implementation. We propose that although certain teacher readiness factors (that are present before *RC* training begins) may directly relate to their likelihood of implementing *RC* with fidelity, this relation may be malleable. Intervention trainers may have an opportunity, during the initial *RC* training, to improve teachers' likelihood of implementing intervention with fidelity. In other words, by engaging teachers in the initial training, coaches may alter the pathways set in play by teacher readiness characteristics that may make teachers less likely to implement with fidelity and, ultimately, may ease the process of teacher change.

In general, FOI is conceptualized as the degree to which core intervention practices are carried out as designed (Greenberg et al. 2005). Although there are many consequences to low FOI, one is lack of effect on child outcomes (Durlak and DuPre 2008; O'Donnell 2007). For this reason, there is an increasing awareness of the importance of anticipating low FOI before it occurs, reflected in the growing number of measures of "readiness for change." In fact, readiness for change theories, such as the Transtheoretical Model of Change, identify stages of change, including those that occur before action begins (Peterson 2013; Prochaska et al. 1992). Related measures, however, generally focus on organizational/school characteristics (Weiner et al. 2008) rather than teacher characteristics. FOI is influenced by factors at many levels, but ultimately, it is the teachers who need to modify practices. Teacher characteristics, although often deemed influential during implementation (Wehby et al. 2012), have not typically been assessed before implementation. Building on this premise, we examined teacher readiness including teaching style, beliefs, and demographics. Our conceptualization of readiness factors draws on existing research but is also exploratory due to recent attention to readiness.

Initial SEL Teaching Style: Global Emotional Support and Discrete SEL Teaching Practices

Teachers' own social-emotional learning (SEL) skills may influence children's experience in a SEL intervention. Jennings and Greenberg (2009) suggest that teachers with high social-emotional competence are more aware of social dynamics in the classroom and more effective at managing and cultivating relationships. As such, teachers who have an initial teaching style aligned with SEL practices, prior to training in the intervention, may implement new SEL intervention practices more easily. We operationalize teachers' initial SEL teaching style as teachers' global emotional support in the classroom and as their use of discrete SEL teaching practices. Emotional support refers to the overall classroom climate (Pianta et al. 2004). Discrete SEL teaching practices, however, refer to specific teacher activities such as having a classroom meeting, which may involve teachers creating opportunities for students to greet each other, make decisions together, and work in groups. Teachers whose discrete practices align with the intervention approach (SEL in the present study; Lieber et al. 2009) and who use intervention practices before training (Cantrell and Hughes 2008) have shown higher FOI. Despite limited research of SEL teaching style, some suggests that teachers are fairly stable in their SEL style, albeit these studies examined stability over short time periods (Curby et al. 2010; Hamre and Pianta 2005).

Initial Teacher Beliefs: Teacher Self-Efficacy and Collective Responsibility

Greenberg (2010) writes about the importance of teacher self-efficacy and theorizes that teachers who have confidence in their skills and ability to implement are more likely to use intervention practices after training. This assertion stems from social cognitive theory and suggests that a person's belief about their ability to change their behavior and influence others (self-efficacy) will affect their level of effort and persistence in new tasks (Bandura 1993). When examined empirically, however, this construct, although relatively stable over time (Ross and Bruce 2007), has had mixed relations to FOI. In studies, self-efficacy has related to teachers' FOI in some cases (Downer et al. 2009; Ghaith and Yaghi 1997) but not in others (Baker et al. 2010; Driscoll et al. 2011). This lack of consistency across studies is also evident within studies that use more than one measure of FOI, suggesting that self-efficacy may relate to some aspects but not others (Abry et al. 2013). For example, in a study of Providing Alternative THinking Strategies (PATHS), teachers' self-efficacy related to the dosage of supplemental activities that integrated PATHS with academics, but not to the frequency of implementation of PATHS lessons or the quality of implementation (Ransford et al. 2009). In another, teachers' self-efficacy for literacy teaching was related to initial FOI, but not 6 months later, whereas teachers' collective efficacy did not relate to initial FOI but was associated toward the end of the intervention (Cantrell and Hughes 2008). Taken together, these findings suggest that self-efficacy as a readiness factor warrants further research. It is plausible that it may not relate to more basic implementation (such as frequency of implementing PATHS lessons or initial implementation of the literacy intervention) but may be relevant for more challenging implementation issues (such as integrating the SEL intervention with academics and sustaining use over time). In the present study, like Cantrell and Hughes (2008), we narrow our conceptualization of self-efficacy to focus on self-efficacy regarding classroom management, which aligns with the intervention aims. We hope that this specificity adds clarity to mixed findings in research.

For readiness to change, we see potential for complementarity between strengths in the teacher and teachers' perceptions of strengths in the school context. Whereas teachers' self-efficacy reflects their perceptions of their personal capacity, experiences with colleagues and administrators inform their perceptions of the capacity of the school to foster student learning (Sebring et al. 2006). Teachers' feelings of collective responsibility stand out as a collective experience that is particularly germane to readiness for teacher change. Specifically, teachers' perceptions of collective responsibility indicate the extent to which teachers believe that their colleagues are committed to shared norms about improving their school and ensuring that children school-wide are learning. A large-scale study showed that higher initial teacher-perceived collective responsibility related to roughly 1/5 of a standard deviation gain in student learning 2 years later (Bryk et al. 2010). Moreover, collective efficacy has been seen to change relatively quickly in schools with unstable leadership (Jellison Holme and Snodgrass Rangel 2012). We continue the study of self-efficacy and teacher perceptions of collective responsibility.

Teacher Demographic Characteristics: Education Level and Years of Experience

Teachers' education and years of experience have been examined in relation to teaching quality but are just beginning to be understood in relation to FOI. It is possible that higher education reflects experience in higher education settings, providing practice with learning in a structured, group setting, as is often used in intervention trainings. It is also intended to promote teaching flexibility and skill, which links to FOI (Forman et al. 2009). Years of experience has linked to stronger classroom organization (Phillips et al. 2007) but has been less examined with FOI, often showing mixed findings. For example, experienced teachers had higher FOI than their peers in one study (Downer et al. 2009), but teacher experience was unrelated to FOI (Driscoll et al. 2011), or negatively related to participation in training (Matsumura et al. 2010), and implementation attitudes (Ghaith and Yaghi 1997) in others.

Engagement in Training as a Pathway to Fidelity of Implementation

Teachers' engagement in intervention training, sometimes called participant engagement or responsiveness, relates positively to FOI (Domitrovich et al. 2009; Reinke et al. 2013). In fact, providing highly engaging initial training is critical for effectively supporting teachers (Kretlow and Bartholomew 2010). The intervention training may be an important time to encourage teacher engagement because it may set the tone for teachers' ongoing approach to learning the intervention. Some teachers, however, will be less engaged than others. For example, in one study, teachers with more emotionally supportive teaching practices had higher engagement in an SEL and literacy intervention (Downer et al. 2009). Research on this potential mechanism is sparse. This is problematic because understanding which teachers are less likely to be engaged could help coaches target efforts and ultimately engage teachers who might otherwise be low implementers.

Goals of the Present Study

The present study aims to examine relations between teachers' initial readiness and later FOI with measures of teacher characteristics collected before training began and rigorous observational measures of fidelity in the second year of implementation. Research question 1 examines the relation between teachers' readiness with observed FOI of *RC* 2 years later. We hypothesized that teachers who interact with students in emotionally supportive ways and have a high use of discrete SEL practices would have an easier time incorporating the new *RC* practices and thus show higher FOI. Further, we hypothesized that teachers with more self-efficacy and a greater sense of collective responsibility would show higher FOI. Finally, we hypothesized that teachers with high education levels would implement with fidelity. It was unclear, however, whether years of teaching experience would also relate to FOI. For research question 2, we aimed to unpack the mechanism between readiness and implementation by examining engagement in initial *RC* training as a mediator. We hypothesized that teachers with high readiness might have high FOI because they would be more engaged in training.

Methods

The *RC* approach was developed by the Northeast Foundation for Children (NEFC) and focuses on building teacher capacity, placing a high demand on teacher change. Specifically, the *Responsive Classroom* approach aims to "foster safe, challenging, and joyful classrooms and schools…by bringing social and academic learning together" through the use of practices that teachers are asked to apply throughout the curriculum, with all children (NEFC 2007, p.1). The *RC* approach requires that teachers align their beliefs, practices, and language to reflect a teaching philosophy based on developmental psychology. This intervention was chosen because it is organized in way that may facilitate dissemination, has a history of wide use, and has some evidence for producing teacher and student change (Rimm-Kaufman et al. 2007; Rimm-Kaufman et al. 2014; Ottmar et al. 2013). Most importantly, the *RC* approach has similarities with many school-

based interventions that use coaching to improve teacher capacity and classroom social interactions (Greenberg 2010; Wanless et al. 2013). Teacher training consists of 2-week-long sessions during consecutive summers and ongoing coaching. Coaches observe, give feedback, demonstrate, meet administrators, and provide workshops.

The present study takes place in the context of a randomized controlled trial, which studied a cohort of children and their teachers from the end of second to the end of fifth grade. Schools were assigned to intervention (n=13) or waitlist control conditions (n=11; Rimm-Kaufman et al. 2014). The present study focuses on teachers in the intervention schools, with 3 to 47 % of students eligible for free or reduced lunch and 30 to 87 % being nonwhite. Participants (N=126) for the present study are fourth (46 %) and fifth (54 %) grade teachers from the 13 schools assigned to the intervention group. Almost all of the teachers were female, and the average age was 37 years (SD=11). Teachers identified as European American (80 %), Hispanic American (8 %), African-American (4 %), Asian-American (2 %), Native American (1 %), or as multiracial or other (5 %).

Pre-training data collection, before *RC* training began, occurred in January–May 2008 and 2009 for fourth and fifth grade teachers, respectively. In the following summer, teachers attended the first weeklong training in the *RC* approach (*RC1*), where coaches rated their engagement (described below). One year later, teachers attended the second weeklong training for the *RC* approach (*RC2*). Intervention year data collection (2009–2010 for fourth grade teachers and 2010–2011 for fifth grade teachers) occurred during each cohort's second year of implementation, after completing *RC1* and *RC2*. During the pre-training term (January–May), before *RC1*, teachers were videotaped during two 60-min observations on two separate days. Twelve independent observers, blind to condition, rated the quality of the emotional climate (described in "Measures" section) of two 20-min segments selected from each 60-min observation. This process resulted in pre-training ratings of emotional support based on 80 min of classroom observations spanning two school days. In pre-training online surveys, teachers reported education level (Master's degree or not) and years of teaching experience. During the intervention year, observations were live-coded and corresponded to three windows (September to November, November to February, and February to April) during mathematics instruction.

Initial SEL Teaching Style: Teacher-Rated Discrete SEL Teaching Practices and Observed Global Emotional Support The Classroom Practices Teacher Survey (CPTS; Nathanson et al. 2007) is a 46-item measure (α=.86) assessing teachers' reported use of *RC* practices (e.g., "In the morning we have a class meeting where we sit in a circle facing one another") on a five-point scale (*not at all characteristic* to *extremely characteristic*). The focus is on specific teaching practices and activities, not the overall climate. The emotional support domain of the Classroom Assessment Scoring System (CLASS; Pianta et al. 2008) taps the global climate of the classroom and reflects teachers' interactions with children in four dimensions: positive climate, negative climate, teacher sensitivity, and regard for student perspectives. This measure focuses on the overall feeling of warmth and respect in the classroom, not specific activities. Each dimension was scored on a seven-point Likert scale (α=.72). Following a 2-day training, CLASS coders rated a minimum of 10–20-min master-coded videos to establish initial reliability and attended semimonthly meetings to independently rate a randomly selected video segment to show satisfactory ongoing reliability (intraclass correlation (ICC)≥.90). Emotional support scores were averaged across four observations.

Initial Teacher Beliefs: Teacher-Rated Self-Efficacy and Collective Responsibility Teachers used the four-item Classroom Management subscale from the Teachers' Sense of Efficacy Scale—Short Form (Tschannen-Moran and Hoy 2001). Items (e.g., "How much can you do to control disruptive behavior?"; α=.90) were rated from 1 (*not at all*) to 5 (*a great deal*). Teachers rated their perceptions of collective responsibility or shared commitment at their school to improve the school quality using an 11-item scale (α=.92; Consortium on Chicago School Research 2005). Teachers were asked "how many teachers at their school" ascribed to behaviors such as "…are really trying to improve their teaching?" (*almost none* to *nearly all*).

Engagement in Training During *RC1*, the trainers rated eight items (α=.90) on a five-point scale (*not at all* to *very characteristic*). These trainers were employees of NEFC and were not affiliated with the schools. Items included the following: (1) Participant was in full attendance (i.e., attended each day for the entirety), (2) participant was activity-engaged during training (e.g., paid attention, participated in group discussions, collaborated in learning), (3) participant appeared open to ideas presented during training (e.g., paid attention, did not argue that practices would not work in his/her school/classroom, etc.), (4) participant shared ways in which he/she could implement practices in his/her classroom, (5) participant appeared likely to implement *RC* practices in his/her classroom, (6) participant showed respect for the expertise of the *RC* consulting staff, (7) participant showed extra enthusiasm for the *RC* approach (e.g., side conversations about *RC*, stayed late to discuss approach, talked about *RC* during breaks), and (8) Participant is likely to implement *RC* practices in the upcoming months as fully as can be expected based on his/her level of training. Alpha was .96 and .93 for fourth- and fifth-grade teachers, respectively.

Observed Implementation in Year 2 The Classroom Practices Observational Measure (CPOM; Abry et al. 2007) is a 16-item observational measure coded on a three-point scale (*not at all characteristic* to *very characteristic*), designed with NEFC. Previously, the CPOM detected significantly higher FOI in treatment teachers compared to control teachers (N=179, p<.01). For the present study, an abbreviated ten-item version of the CPOM (α=.66) was used. Data were gathered during math instruction in relation to study goals beyond our scope but offered a useful sample of classroom behavior. One example item was "Teacher asks questions or makes statements that invite students to remember expected behaviors." Six research assistants were trained by the first and second authors of the measure and established initial reliability on at least eight 60-min master-coded videoed observations (exact match with master codes ≥80 %). Coders attended monthly meetings at which intraclass correlations (ICCs≥.93) were satisfactory. Items for each observation were averaged to create a single score for each of the three observation windows. Those scores were then averaged to create an overall score of observed implementation per teacher to represent the school year.

Analytic Strategy and Results

Descriptive statistics and correlations are included in Tables 1 and 2. We conducted a multilevel structural equation analysis in Mplus version 6.11, with teachers (level 1) nested in schools (level 2), to control for clustering. These analyses excluded 12 teachers with missing data, for an analytic sample of 114. Although school level variance in the outcome (11.27 %) and the mediator (19.20 %) was not statistically significant, their size indicated that data were not independent and multilevel modeling was appropriate. We also examined clustering based on teachers grouped in *RC1* trainers (the six trainers who rated teachers' engagement); however, variance at the trainer level was similar for the mediator (29.39 %) and substantially lower for the outcome (0.12 %). Since clustering is typically determined by the outcome's intraclass correlation, and since we had some missing data regarding *RC1* trainer for each teacher, we chose to use school as our level 2 grouping variable, not trainer.[1] We note the amount of between-trainer variance on the mediator as an important consideration for future research.

All teacher readiness factors were included for research question 1. Research question 2 added engagement in initial *RC* training as a mediator (Fig. 1). For research question 2, we tested all direct effects and indirect effects through engagement in initial *RC* training. We note that although correlations between our outcome and teacher readiness factors were not significant, we proceeded with our advanced analyses. Historically, mediation analyses were only run in the presence of significant main effects, but simulation studies have shown that this approach can be unnecessarily low-powered, and directly testing the whole mediation model may be the clearest way to ascertain these relations (Hayes 2009). A Bayesian estimator was used to account for the small sample size and because it is robust to distributional assumptions of the estimated parameters of interest, thus providing a more trustworthy result than a traditional maximum likelihood estimator (Lee and Song 2004; Muthén 2010). Assumptions of linearity and no outliers were met according to histograms, correlations, and scatterplots. Moreover, additional diagnostic analyses suggested that the data were missing at random (MAR). These analyses included calculating dummy variables for each variable in our analysis that were coded as 1 if missing and 0 if not and then running logistic regressions and finding no significant relations with variables in our dataset and the likelihood of missingness (Acock 2005). The missing data was handled by the Gibbs algorithm in the Bayesian estimator, which uses all available data, similar to the full-information maximum likelihood estimator (FIML), resulting in unbiased estimates (Asparouhov and Muthén 2010). Noninformative priors and two chains in the Markov chain Monte Carlo estimation were used, and the model converged within 1,000 iterations. Trace plots showed appropriate mixing. Autocorrelation plots showed low correlations.

For research question 1, multilevel analyses showed no significant relations between initial readiness factors and observed implementation. For research question 2, we examined relations between readiness factors and trainer-rated teacher engagement in initial training and, in turn, the relation between engagement and implementation. Overall, 21 % of the variance in observed *RC* implementation was accounted for by the mediation model, and none of the direct effects from baseline factors significantly related to observed

Table 1 Descriptive statistics (N=126)

	M	*SD*	Range
Pre-training			
Teacher-rated self-efficacy	4.15	.55	3.00–5.00
Teacher-rated collective responsibility	3.40	.64	2.00–4.82
Observed emotional support	5.20	.45	4.00–6.38
Teacher education level	0.59	.50	0.00–1.00
Years of teaching experience	8.67	8.44	1.00–32.00
Teachers' rated initial use of *RC* practices	3.38	.37	2.52–4.46
Initial training: first weeklong *RC* training (*RC1)*			
Engagement in initial *RC* training	4.17	.72	1.71–5.00
Intervention year 2			
Observed implementation in year 2	1.61	.28	1.00–2.30

[1] We also ran our analyses for research questions 1 and 2 with trainer-rater as the level 2 grouping variable and only included teachers who had data on their trainer id (N=87). In these analyses, the pattern and magnitude of effects were unchanged.

Table 2 Correlations (p values), N=126

	1	2	3	4	5	6	7	8
Pre-training								
Teacher-rated self-efficacy	–							
Teacher-rated collective responsibility	−.13 (.30)	–						
Observed emotional support	−.09 (.51)	.01 (.93)	–					
Teacher education level	−.09 (.45)	−.08 (.52)	−.04 (.75)	–				
Years of teaching experience	.27 (.02)	−.22 (.06)	−.05 (.69)	−.08 (.46)	–			
Teachers' rated initial use of *RC* practices	.40 (.00)	−.01 (.94)	.18 (.14)	.00 (.99)	.06 (.61)	–		
Initial training: first weeklong *RC* training (*RC1*)								
Engagement in initial *RC* training	.11 (.27)	−.24 (.06)	.31 (.01)	.01 (.92)	.03 (.83)	.09 (.44)	–	
Intervention year 2								
Observed implementation in year 2	−.05 (.73)	−.07 (.67)	.19 (.25)	−.06 (.70)	−.16 (.29)	.08 (.63)	.45 (.00)	–

implementation. For research question 2, we tested engagement in training as a mediator. Engagement in *RC1* training related significantly to observed *RC* implementation 2 years later (β=0.39, 95 % Bayesian credibility interval (BCI) 0.13 to 0.61; Van de Schoot 2012). In other words, teachers who were .72 (1 SD) points more engaged in initial training than their peers were about .09 points (about .33 SD) higher than average on implementation. In addition, the relation between observed emotional support and engagement in initial *RC* training was significant (β=0.26, 95 % BCI 0.05 to 0.44), and teachers with .45 (1 SD) points higher initial emotional support than average, generally .18 points (about .25 SD), more engaged in the initial training than their peers. The indirect effect of observed emotional support through engagement in initial *RC* training was significant and positive (β= .10, BCI 0.01 to 0.15). This indirect effect was directly modeled in our analysis and is essentially the product of the two direct paths that comprise it.

Discussion

Results from the present study extend prior research by unpacking the pathway through which teacher characteristics forecast FOI of a SEL intervention. Specifically, the present study examined teacher characteristics assessed before teachers began training in a classroom-based SEL intervention, *Responsive Classroom*, and their relations to observed implementation 2 years later. Counter to hypotheses, teachers' initial SEL teaching style (emotional support and use of intervention practices), beliefs (self-efficacy and perceived sense of collective responsibility at their school), and demographic characteristics (education level and years of teaching experience) did not directly relate to teachers' implementation of *RC* practices 2 years later. Thus, pre-training measurements of teachers provided little insight into later intervention uptake. However, when we consider teachers' engagement in *RC* training as a mediator, a more lucid picture unfolds; that is, teachers high in initial emotional support were more engaged in intervention training and, in turn, showed higher FOI. Our findings point to the value of observing teachers' engagement in training as a behavioral indicator because it provided useful information about teachers' future level of implementation.

Unexpected Lack of Relations Between Teacher Factors and Fidelity of Implementation

Contrary to hypotheses, we found no significant direct relations between initial teacher factors (SEL teaching style before intervention training, including emotional support and discrete SEL teaching practices) and observed *RC* implementation 2 years later. Despite some relations in research (Cantrell

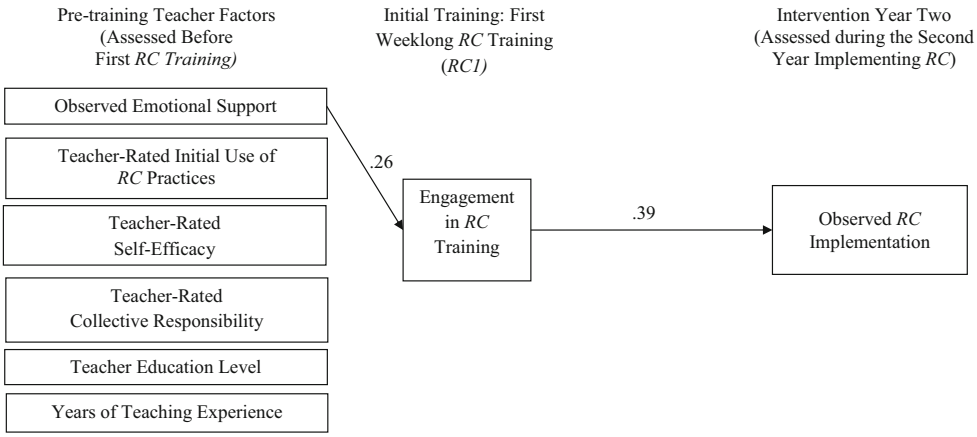

Fig. 1 *RC* means Responsive Classroom. Multilevel structural equation model of baseline predictors of implementation via engagement in training. Standardized coefficients are reported when two-tailed tests are significant (when the Bayesian credibility interval does not include zero). Only significant paths are drawn (N=114)

and Hughes 2008; Lieber et al. 2009), initial SEL teaching style did not directly relate to later observed implementation. The grades taught by participants in the present study were younger than the Cantrell and Hughes (2008) study, and the data collection on initial teaching practices was quite different from the qualitative measures in the Lieber et al. (2009) study. It is also important to note that although some research suggests stability in these constructs over time, it is possible that they would have related to implementation if measured concurrently. Differences in our study and past research may be reflected in our lack of significant findings; however, mediation discussed below offers further insight.

In addition, teacher beliefs (self-efficacy specifically around classroom management, and their perception of collective responsibility) and demographic characteristics did not relate directly to implementation, reflecting how difficult it is to predict teacher behavior changes systematically, particularly when forecasting teacher behavior 2 years in advance. Although teacher self-efficacy has been relatively stable in research and collective efficacy is more stable when leadership in the school is stable, it is possible that changes in these constructs over time could have weakened their relations with FOI. Teaching is an intensely psychological process, and thus, changing teachers' classroom practices often requires a shift in the thinking and beliefs that underlie behaviors (Evans 2001; Rimm-Kaufman and Hamre 2010; Wanless et al. 2013). The absence of concrete evidence for direct associations between readiness factors and later implementation led us to redirect our attention. Specifically, we turn to processes reflecting teachers' engagement in learning a new intervention.

Engagement in Training as a Relatively Untapped Construct

One readiness factor, emotional support, was related to implementation via teachers' engagement in training as rated by trainers. Teachers with higher observed emotional support before intervention training were more engaged in the initial *RC* training and then showed higher observed implementation of *RC* 2 years later. This pathway had a significant indirect effect suggesting that assessing teachers' emotional support provided important information about which teachers may need additional supports to engage in training and ultimately have higher implementation. The fact that observed emotional support did not directly influence implementation, but only via engagement in training, calls attention to the importance of systematic coach observation and reflection during teacher training to help coaches redirect teachers with low readiness (emotional support).

Although the present study focuses on understanding readiness factors that can be assessed before resources have been spent on training, the strength of the positive association between engagement in training and later FOI is worth noting as a bellwether that could be useful to coaches. The most plausible explanation is intuitive—teachers live busy lives and need to navigate competing priorities. Those who recruit their resources and direct attention to the weeklong *RC* training are probably those more likely to implement. In this way, this finding is analogous to research on student engagement showing the important role of emotional and behavioral engagement in predicting learning (Reschley and Christenson 2012). In future intervention efforts, it may be useful for trainers to systematically collect and reflect on teacher engagement ratings to guide decisions about follow-up support and coaching.

Rater Effects In the present study, intervention trainers rated engagement in training, different from much work in this area (e.g., Atkins et al. 2008) that has utilized teacher reports of intervention uptake. Trainers may have a wider frame of reference that allows them to rate teachers and schools in a way that increases predictive utility (Wanless et al. 2013). We reiterate, however, the lack of independence of these ratings and the need for future research using trainer ratings to account for this. We were not able to account for this rater effect because of some missing data on which trainer rated each teacher. Regardless, the results suggest the need to consider coaches as useful raters, particularly important for

interventions taking a continuous improvement approach as they may be able to rate teachers multiple times to inform training adjustments across the course of the professional development. In sum, although teacher perceptions are valuable, there is a need for mixed methods research, drawing from multiple informants that leverages intervention trainers' experience and expertise.

Although the present study extends literature on teacher change and implementation, there are four main limitations. First, *RC* was not implemented school-wide, as it is intended. This is, however, representative of *RC* implementation outside of research. Second, readiness is a process that is distributed throughout the ecology of the school and community (Domitrovich et al. 2008); other potentially influential variables (e.g., district, principal, climate) were not included. Third, our small sample size suggests that the nonsignificant findings should be interpreted with caution. The nonsignificant paths could indicate a lack of power to detect a significant relation or could indicate that there is no underlying relation. Finally, baseline predictors of implementation may differ depending on intervention characteristics (Franks 2010). *RC* is a fairly complex intervention involving changes in beliefs and practices. Different readiness factors may emerge as salient in less complex interventions. Future research is needed to examine readiness factors in interventions that range in complexity.

Intervention training tends to be time intensive and expensive. If supports to encourage implementation are not in place, investments may be largely wasted. In this study, we identified one initial teacher characteristic that related significantly to observed *RC* implementation (observed emotional support) via engagement in training. One possible next step toward improving implementation of the *RC* approach or other SEL interventions is the instantiation of a data collection process that systematically assesses pre-training emotional support and engagement in training. Although beyond the present study, it may be useful in this data collection process to consider conceptualizing engagement in training as a multirater construct, including teachers' perceptions with trainer perceptions. Once in place, we see the utility of creating an established approach for coaches to use these data (and other information) as part of continuous improvement process to help coaches individualize SEL training and support.

Researchers are considering which strategies enhance implementation. Work conducted on other interventions offers a range of promising options that may be differentially well-suited depending on teachers' readiness. For instance, motivational interviewing among teachers early in the process may help teachers identify and resolve sources of ambivalence about adoption of new practices (Miller and Rollnick 2013). In addition, training a few key opinion leaders at the school in the year prior to training others may lead to intervention diffusion and school-wide familiarity with the intervention that, in turn, may facilitate implementation (Atkins et al. 2008). Successful implementation of SEL interventions continues to be a major challenge (Reinke et al. 2012). Identifying factors that predict engagement in training and implementation holds promise for scaling-up interventions for widespread use.

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