Title: Collective Efficacy and Adult Community: Teacher and Principal Perceptions After Two Years of Implementing *Leading Together* in Schools

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Abstract Body

Problem / Background / Context:

Collective teacher efficacy, known in this paper as *collective efficacy* (CE), is the shared perception that the efforts of educators as a group in a school will result in manifesting positive student outcomes (Goddard, Hoy, & Woolfok Hoy, 2000). Past studies have shown CE to be significantly related to academic climate (Bandura, 1993), as well as academic achievement, even after controlling for socioeconomic status (Goddard, 2002). No studies, to our knowledge, have examined longitudinal changes in levels of CE among groups of professional educators after having participated in an adult social and emotional learning (SEL) professional development program. The present mixed-methods pilot study was conducted in collaboration with the developers of a new adult community-building intervention called *Leading Together* (LT), which focuses on strengthening relational trust among staff. The primary research focus of the collaboration was to gather and share descriptive information regarding implementation and examine program efficacy. From the context of this work, this study follows teacher and principal changes in CE during the two-year implementation period.

The present study draws from the cyclical theoretical model of CE put forth by Goddard, Hoy, and Woolfolk Hoy (2000). This model is the group-level application of teacher efficacy (Tschannen-Moran, Woofolk Hoy, & Hoy, 1998), with roots in social cognitive efficacy theory (Bandura, 1997) and locus of control theory (Rotter, 1966). In the CE model (Figure 1), inputs, such as a group of teachers raising student test scores or participating in the implementation of a professional development program, are experiences characterized as sources of collective efficacy beliefs (CEB) (Goddard, Hoy, & Woolfolk Hoy, 2000; Bandura, 1997). There are four types of sources of CEB that form the perceptions of the capabilities of a group: *mastery experience, vicarious experience, social persuasion,* and *affective state,* which may be *functional* or *dysfunctional* in nature. *Mastery experience* refers to a group or individual's perception of group capabilities based on prior experiences of success or failure. *Vicarious experience* is defined as the perception of group capabilities based upon the observation of another group with similar characteristics. *Social persuasion* is the perception of group capabilities based on feedback provided by another group or individual. The fourth source of CEB is *affective state*. *Affective state* refers to the perception of capabilities based on the reaction of the group, elicited when faced by a challenge or crisis. Affective state may be functional or dysfunctional. Functional affective state informs perceptions of group capabilities based on the ability of the group to withstand pressures and cope. Dysfunctional affective state informs perceptions of capabilities based on observations of group avoidance, negative emotional reactions, and an inability to adapt when confronted with challenges. Experiences are usually labeled with more than one of the sources of CEB categories. Sources of CEB are then processed cognitively through evaluations, assignations, and other means of sense-making (Goddard, Hoy, & Woolfolk Hoy, 2000).

CE is comprised of two subconstructs: *group competence* and *task analysis* (Goddard, Hoy, & Woolfolk Hoy, 2000). *Group competence* is the estimation of the capability of the educational staff to meet student needs. *Task analysis* is the estimation of how external factors establish task difficulty and to what extent this poses a challenge to collective staff efforts in addressing student needs. The two subconstructs are interrelated and inform one another. Altering levels of CE is believed to be difficult.

Attending to *relational trust* in the adult school community was a primary focus for the LT intervention. *Relational trust* is defined as having the confidence that others in a role set (e.g., teacher-teacher, administrator-teacher, teacher-parent) will fulfill obligations and expectations relevant to the shared task of educating children (Robinson, 2010). It can be broken down into four interrelated components: *social respect*, specifically played out in the quality of interpersonal communication; *personal regard*, the capacity for caring; *role competence*, having faith in others' abilities to act according to their stated intentions; and *personal integrity*, the perception that one's actions are guided by a personal moral and ethical perspective (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010). Strong relational trust among members of school communities has been shown to motivate involvement in school improvement efforts and increase positive student academic and social outcomes.

Purpose / Objective / Research Question / Focus of Research:

The present study examines how principal and teacher CEB change over the two year arc of implementation of the LT professional development program. Specifically, survey data are analyzed to measure changes in CE levels at participant schools. Additionally, participant interviews are analyzed to explore potential reasons for shifting levels of CE during implementation. In sum, we pose the following research question: How do principal and teacher CEB change after two years of implementing the LT professional development program?

Improvement Initiative / Intervention / Program / Practice:

The LT approach is an adult social and emotional learning intervention based on the work of Parker Palmer and was developed by members of the Center for Courage & Renewal (2014), both of whom have prior experience developing the Open Circle and Responsive Classroom social and emotional learning interventions for students. Principals and teams of 3-5 principal-selected teacher leaders attend a four-week introductory summer training prior to implementation. The LT developers facilitate relationship-building, personal renewal activities, and collaborative practices collected in the LT Guidebook. School teams bring plans for implementation back to each school, introducing activities to staff through faculty meetings and integrating approaches into existing school structures. One additional training day in the fall and one day in the spring are offered to school teams. On-demand coaching is available through email and phone calls, in addition to the facilitator site visits provided at least once per semester.

Setting:

Ten intervention schools in the northeastern United States were purposefully sampled by the program designers. One school chose to discontinue participation at the conclusion of the first year. Another school discontinued participation at the conclusion of the first year due to leadership changes. The remaining schools were all elementary, with the exception of one middle school. Schools were urban and suburban, public, magnet, and charter. Compared with one another, the schools were demographically diverse in their representation of student free/reduced (FRPL) lunch status (range = 4% - 98% FRPL, M = 30% FRPL) and minority student composition (range 7% - 94% racial minority, M = 36% racial minority).

Population / Participants / Subjects:

Final participant numbers and characteristics are still pending as second-year data collection is currently underway. Many recruited principals had prior relationships with the LT program developers through knowledge of the Center for Courage & Renewal. Participants included 14 administrators, 25 teacher leaders, and 29 school site teachers who were not involved with LT implementation training. Our sample at each school included at least one administrator, one school leader teacher, and one school site teacher who did not participate in

training or implementation planning. Teams participating in the direct training and facilitation portion of the intervention included principals and school leader teachers, with each of these *LT* teams ranging from 3-6 members. Administrators were either White (89%) or Hispanic (11%). Sixty-eight percent of the administrators were male. Remaining LT Team members were 89% White and 78% female. Site teachers were White females. All participation was voluntary, and nominal monetary gifts for participation in data collection were disbursed at study completion.

Research Design:

This study was conducted in the context of efforts to develop a new intervention supporting teacher effectiveness. Therefore, design and methods were selected in alignment with this goal. This study employs a sequential, exploratory mixed methods design (Onwuegbuzie & Leech, 2006). Quantitative analyses are used to identify changes in CE, as well as the subconstructs group competence and task analysis. Following this step, interview data are qualitatively analyzed to explore changes in quantitative levels of CE.

Data Collection and Analysis:

Baseline survey data collected prior to the initial implementation year, and survey data collected at the conclusion of the second implementation year, include the Collective Teacher Efficacy Scale – Short Form (Goddard, 2002), (α = .81), the Teacher-Teacher Trust Scale (Consortium on Chicago School Research [CCSR], 2011), (α = .90), the Principal-Teacher Trust Scale, (α = .71), and the Teacher-Principal Trust Scale, (α = .92). Matched t-tests, means, and effect sizes will be calculated for collective efficacy, group competence, task analysis and a relational trust composite. Intraclass correlation coefficients will also be calculated. Preliminary qualitative findings from the end of Year 1 suggested a potential relationship between collective efficacy and relational trust, leading to follow-up quantitative analyses that included the calculation of the correlation coefficient.

One administrator, one LT lead teacher, and one site teacher from each school were interviewed by phone for half an hour at baseline and will be interviewed again at the conclusion of the study. Principal and school leader interview questions focus on *LT* implementation and its relation to the school (e.g. "What goals for your school shifted or changed because of your experience with *LT*?") Site teacher interview questions elicited general responses about school daily life (e.g., "Tell me about the sense of adult community in your school, for example – do the adults at your school assume that each other are competent?").

Qualitative analysis will employ a two-stage coding scheme. Hypothesis coding in the first stage (Miles, Huberman, & Saldana, 2014) will be used to test the CE theory framework (Goddard, Hoy, & Woolfolk Hoy, 2000). The sources of CEB will be used as codes in the first stage. The first author will code all documents, holding regular reliability checks with all three study authors. Second-stage coding will be based on themes taken from memos gathered in the first stage of coding. Relational trust was mentioned in conjunction with sources of CEB and became a theme in preliminary data analysis of interviews from the end of the first year of implementation. Therefore, we will continue to include the relational trust code in the second stage of final analyses. Code frequency tables will be created using Dedoose analytic software to support the tracking of excerpt patterns across schools (Miles, Huberman, & Saldana, 2014; Tashakkori & Teddlie, 2010), specifically in regard to sources of CEB mentioned in interviews.

Findings / Outcomes:

Preliminary analyses were conducted on survey and interview data collected at baseline and at the end of the first year of implementation. Survey results indicated no change in CE or the task analysis subconstruct from baseline to the end of Year 1 (Table 1). However, a

statistically significant increase in group competence was found. ICCs increased for both subconstructs, with group competence showing 15-24% of the variance at the school level while task analysis showed 57-63% of the variance at the school level at the end of the first year of implementation.

Qualitative analysis of interviews from the end of the first year revealed patterns across schools. All schools had excerpts indicating affective state as a source of CEB. Five of these schools had more functional affective state excerpts than excerpts coded for dysfunctional affective state. Of the functional affective state schools, a large percentage of excerpts were also either coded as indicating mastery experience or social persuasion as sources of CEB. Social persuasion excerpts were largely positive and constructive in nature. These five schools maintained implementation of LT throughout the majority of the first year of implementation. As a result, principal and teacher participants at these schools were provided more opportunities to engage in reflective and structured collaborative activities together. These activities offered guided parameters for participants' cognitive processing of sources of CEB encountered through their professional experiences. The three schools with a larger percentage of dysfunctional rather than functional affective state excerpts also had a large percentage of excerpt coded with social persuasion as a source of CEB, but the social persuasion was often negative in nature. Implementation of LT at these schools lacked follow-through and shared decision-making regarding planning. As a result, teachers and principals at these schools had fewer opportunities to participate in activities that could open collaboration and community building across staff. This also resulted in participants often cognitively processing sources of CEB as individuals or in unguided groups.

Relational trust emerged as a theme intertwined with many of the excerpts coded for sources of CEB. This led to the hypothesis that the cognitive evaluation of trust was correlated with the development of CE. An overall composite relational trust score was created from survey data collected at the beginning and end of the first year. Correlations were calculated for relational trust and CE, as well as relational trust and each subconstruct. A non-significant 3.6% proportion of the variance in the Time 1 CE was accounted for by relational trust. This increased to a significant 12% proportion of variance in collective efficacy accounted for by relational trust in Time 2. Calculations revealed a significant increase from Time 1 to Time 2 in the correlation between the group competence composite scale score and relational trust, but not task analysis and relational trust.

Conclusions:

Survey results from this study indicated no significant change in overall CE at the end of the first year of implementation. Examining subconstruct survey results, task analysis levels also did not change but group competence levels significantly changed in a positive direction. Qualitative analysis of participant interviews revealed two patterns of sources of CEB associated with functional affective states during implementation and another pattern for schools with dysfunctional affective states during the year. Schools with functional affective states during implementation more often participated in *LT* approaches with structured group and individual activities for cognitively processing sources of CEB than did schools with dysfunctional affective states. A significant, positive correlation detected at Time 2 between relational trust and CE suggests that this association should be examined more closely in future studies of CE interventions with larger, more diverse samples. Results confirm the CE theoretical model and suggest that implementation of LT may provide opportunities to increase CE levels for participants who carry out the program consistently and as intended.

Appendices

Appendix A. References

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Appendix B. Tables and Figures

Table 1
Preliminary Results, End of Year 1 - Collective Efficacy Scale Total Descriptive Statistics

		Time 1					Time 2				
		n	*M*	*SD*	*a*	*ICC*	*n*	*M*	*SD*	*a*	*ICC*
Collective Efficacy		63	4.63	0.69	0.86	0.32	60	4.77	0.61	0.81	0.34
	Group Competence*	63	4.75	0.71	0.84	0.15	60	5.04	0.70	0.90	0.24
	Task Analysis	63	4.51	0.92	0.86	0.57	60	4.48	0.84	0.79	0.63

Note. The change in sample size is due to attrition.

*p<.05

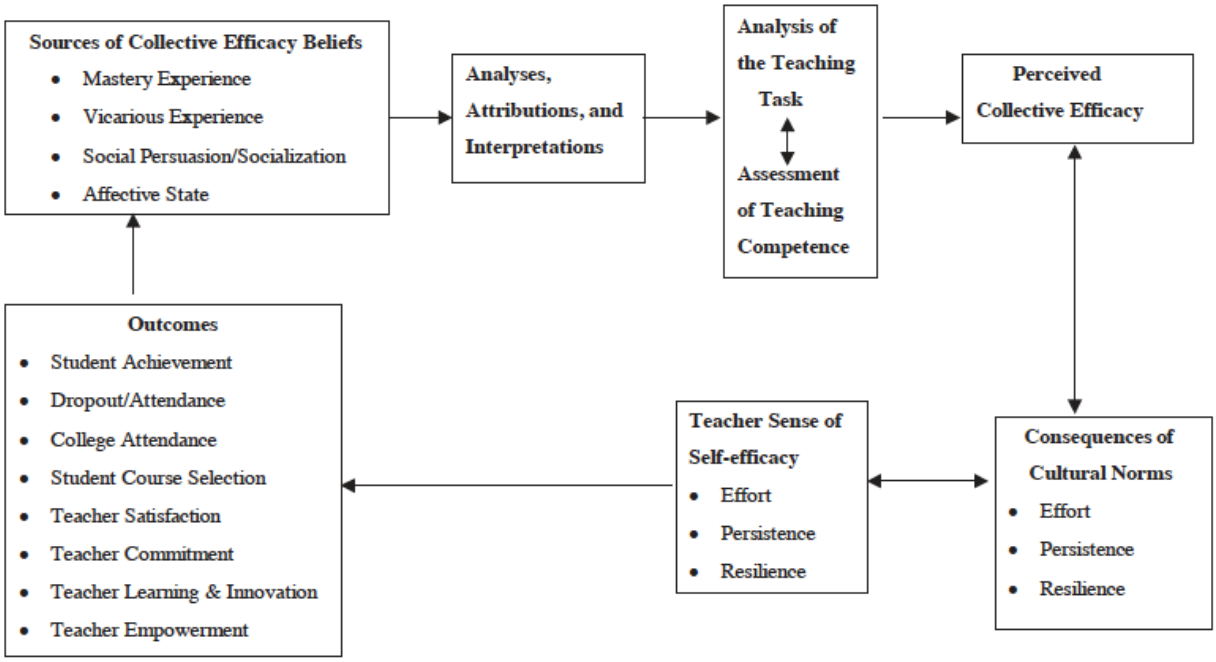

Figure 1. Proposed model of perceived collective efficacy in schools (Goddard, Hoy, & Woolfolk Hoy, 2004).

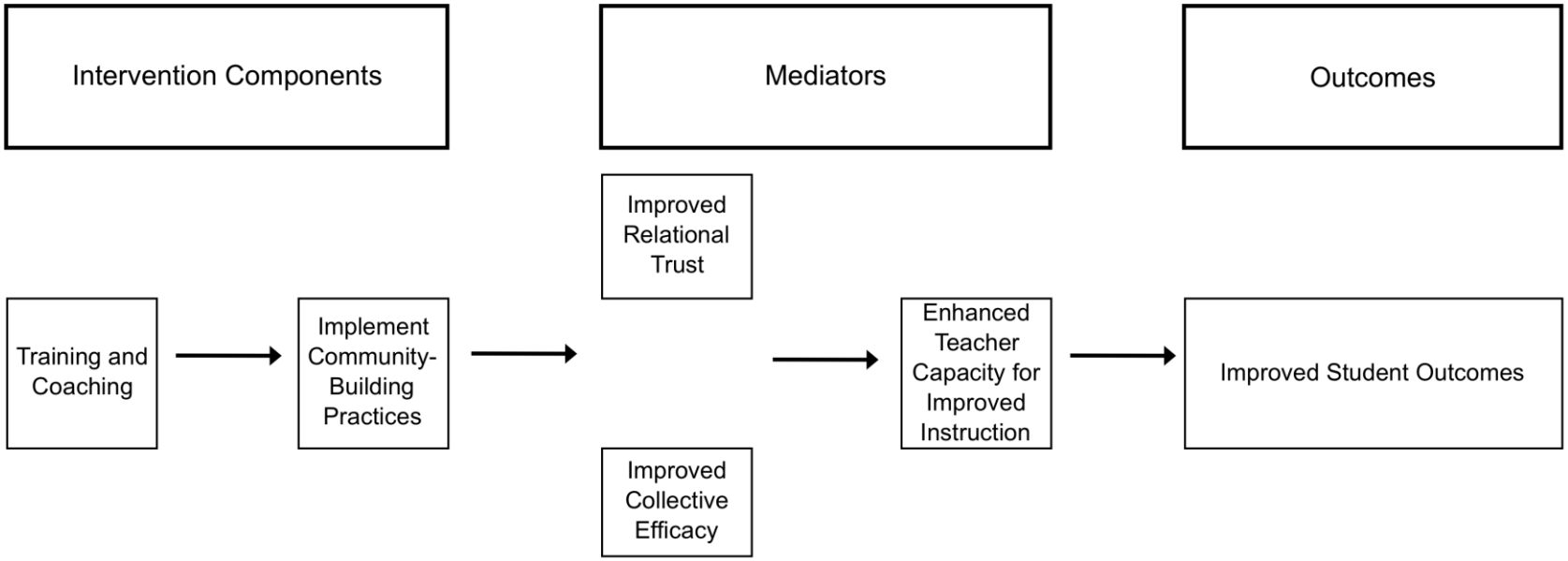

Figure 2. Conceptual model for LT.